RELATIONSHIPS OF ORAL READING AND WORD RECOGNITION ABILITIES OF FIRST-GRADE PUPILS TO THEIR PERFORMANCES ON TESTS OF RATE AND ACCURACY OF PERCEPTION

A THESIS

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BY

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DEDICATION

To my husband, the Reverend John S. Bryan

and

my brother, Samuel L. Davis

I dedicate this thesis

in

Appreciation

ACKNOWLEDGEMENTS

I am deeply grateful to Dr. Lynette S. Bickers, my advisor, Dr. Edward K. Weaver, co-advisor, and Mrs. Willie G. Edwards, principal of Florance Street School, for their helpful criticisms and numerous suggestions given me. Without the cooperation of the children who served as subjects for this study, the research could not have proceeded. I sincerely believe that it was through their sincere kindness and helpful spirit that I was able to perform the task assigned.

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CHAPTER I

INTRODUCTION

Rationale.--There is general agreement that reading instruction is highly important throughout the elementary grades. Beyond this point, however, there are divergent opinions concerning what aspects of the reading process should be emphasized at certain stages in its development. Efficiency in silent reading, effectiveness in oral reading, and skill in word recognition are identified as goals of the program, but teachers differ in their attempts to effect a balance which does not overemphasize or slight the development of either one.

No matter what the plan of teaching may be pupils and teachers come to realize that skills in word recognition are basic tools in reading. To a large extent progress in reading depends upon the growing ability to recognize word units in different contextual settings.

Most considerations of vocabulary development involve two highly interrelated factors: word recognition and word meaning. Word recognition skills cannot be developed successfully in isolation from meaning; moreover, word recognition may be thought of as a first step in dealing with a printed symbol, for after the reader has identified the word he must respond to it at some level of meaning or it is of no use to him.

On the other hand, word recognition skills are aids to interpreting the meanings of new material in which words recur in different arrangements and language patterns. A lack of word recognition ability forms blocks to comprehension which hamper listening, speaking and writing, as well as reading.

Students in this field are aware, also, that the rapidity with which the reader recognizes symbols is highly important. Certainly, there is no

effort to stress speed at the expense of accuracy, but it is realized that if boys and girls are given proper guidance they can develop the ability to respond to symbols quickly and correctly.

The present study addressed itself to the task of finding out what relationships might exist among certain aspects of word recognition abilities and rate and accuracy of perception. It was hoped that this investigation would suggest ways to improve the teaching of reading to pupils who are receiving initial guidance into this vital area of communication.

Statement of the Problem.--The problem involved in this study was to determine the relationship of oral reading and word recognition abilities of first-grade pupils to their performances on tests of rate and accuracy of word perception.

Purpose of the Study.--The general purpose of this study was to ascertain first-grade pupils' relative abilities in oral reading and word recognition skills, and to relate them to their performances on tests of rate and accuracy of perception.

Specifically, this study attempted to answer these questions:

1. What are the general levels of word recognition and oral reading of these first-grade pupils?
2. How do they rate in recognition of words in context?
3. How do they rate in recognition of words in isolation?
4. What are their general levels of rate and accuracy in word perception?
5. How do these levels of perception relate to:
   a. General levels of word recognition
   b. General oral reading performances
   c. Recognition of words in context

d. Recognition of words in isolation

6. What are the differences, if any, in relationships when these performances are considered in terms of sex?

7. What conclusions and implications for improved classroom practices may be drawn from the findings?

Description of Subjects.--The subjects involved in this study were thirty-eight first-grade pupils enrolled in The Florance Street Public School, Savannah, Georgia, during the school year 1954-1955. These youngsters came from homes where there were older children or parents who were interested in their progress in school. Almost the first day of school each of them had a book bag and a lunch box, or money for a hot lunch in the lunchroom.

Many persons who visited their room agreed with the theme, "School is Fun;" these children made it so. Certainly this seemed to be a group of healthy, happy children ready to begin working with the"three R's." Most of them had spent at least one and a half years in the kindergarten. One year from the time of this study three of them were doing acceptable work in grade three, while the others were progressing satisfactorily in their expected grade.

Before beginning the testing program, the California Short-Form Test of Mental Maturity was administered and their intelligence grade placement ranged from 1.0 to 3.0. It was thus concluded that the pupils possessed a range of capacity favorable to initial reading instruction. The pupils' attitude testing program was highly satisfactory. Since many of their lessons were presented in the form of a game, thus, the data for this study was obtained. They came to school eager to get on with their game and to get out early. The oral reading test was completed without their realizing they were being tested. It was to their delight to read for the principal, Mrs.

Edwards. It was from this point that as many as ten children were tested each day until each subject had been tested. Truly, the testing program was a regular routine of enjoyable games for the children.

Instruments.--The instruments used in gathering the data for the research were as follows:

1. The Three Dimension Tachistoscope, testing for accuracy and rapidity in word recognition.

2. The Manwiller Word Recognition Test, Form B for Grades 1 and 2, by Charles E. Manwiller, Copyright 1934 by the World Book Company.

3. The Durrell Analysis of Reading Difficulty, The Reading Vocabulary Section, by Donald D. Durrell, Professor of Education, Boston University.

4. The Vocabulary Section of the Metropolitan Achievement Test, 1952 Revision, by Gertrude Hildreth, World Book Company, New York.

Operational Steps.--In order to realize the purposes outlined in this research, the study proceeded thusly:

1. Literature pertinent to the thesis research was reviewed and summarized.

2. The descriptive survey method of research, employing the special techniques of testing and statistical interpretation, was used to gather the necessary data for the research.

3. The Manwiller Word Recognition Test was administered in order to determine pupils' abilities in recognition of words in isolation.

4. The oral reading section of The Durrell Analysis of Reading Difficulty was employed in order to determine the oral reading abilities of the pupils.

5. The word meaning section of the Metropolitan Achievement Test was administered in order to determine their abilities in recognition of words in context.

6. Further investigation was made of their abilities of word recognition and accuracy of perception with the use of the Three Dimension Tachistoscope.

7. The data derived from the administration of the tests were assembled into appropriate tables and figures as determined by the purposes of the research.

8. The basic data set forth in the tables were statistically treated through the computation of such measures as mean, median, standard error of the mean, standard deviation and Pearson Product-moment Coefficient of Correlation.

9. Conclusions and recommendations were drawn.

Statistical Measures Used.--The statistical measures that were used to answer questions raised in the purposes of the study were as follows:

1. The mean and median were the measures used in order to determine the group average on each of the tests given.

2. The range and standard deviation provided measures of scatter so that it was possible to see the relative homogeneity or heterogeneity of the scores.

3. Measures of standard error were utilized to determine the significance of the various statistics, particularly the mean and coefficient of correlation.

4. In one instance T scores were computed in order to treat two different test scales of word recognition as if they were of the same value.

5. The Pearson Product Moment Coefficient of Correlation was used to determine the relationship between word recognition and rate of perception and oral reading and rate of perception.

6. Measures of "z" scores were utilized for the purposes of comparing relationship.

7. Fisher's "t" was used for the computation of differences when small samples were concerned as well as large ones.

Limitations of the Study.--The limitations of this study inhered in at least three of its aspects. First, it was limited to thirty-eight first-grade pupils who had received initial guidance in learning to read. Secondly, pupils' performances on standardized tests and reaction to quick exposures of familiar symbols provided data for the study. The data were treated statistically through use of measures of variability and central

tendency and relationship.

Description of the Tests.--The Metropolitan Achievement Tests, the Durrell Analysis of Reading Difficulty, the Manwiller Word Recognition Test, and the Tachistoscopic Test were selected on the basis of their high validity, reliability and usability.

The Primary Metropolitan Achievement Test has four separate divisions: Reading, Word Pictures, Word Recognition, Word Meaning and Numbers. The average of the subtest scores on each battery provides a measure of average achievement for the individual pupil. Summaries of individual pupil data for various administrative units will reveal the relative status in each of the areas measured or on total achievement.[1]

The Durrell Analysis of Reading Difficulty Tests were standardized for over a period of four years on approximately 4,000 subjects with reading difficulties. In this extensive use, the norms were found to check satisfactorily against other reading tests. This test is based on the errors made in the reading of the 4,000 children noted above.[2]

The final vocabulary of the Manwiller Word Recognition Tests were taken from an analysis of the vocabulary lists of fifteen basic primers which were considered on the basis of common usage. These words were compared with the Gates Word List as well as a word list derived from standardized reading tests.[3]

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[1]Gertrude H. Hildreth, Metropolitan Achievement Test. Primary Series, New York: World Book Company, 1946.

[2]Donald D. Durrell, Durrell Analysis of Reading Difficulty, New York: World Book Company, 1937.

[3]Charles E. Manwiller, Manwiller Word Recognition Test, New York: World Book Company, 1935.

Statistically the tests were found to be high in validity and reliability. The statistical validity was established by correlating the test with the teacher's judgment of pupils and with the results of the Gates Word Recognition Test. The reliability of this test was determined by calculating the coefficient of correlation between sets of scores from the forms A and B of the test which was administered to 277 first and second-grade pupils. The coefficient was .90/ .008.

The Tachistoscopic Test consisted of 75 words taken from the six basic first-grade readers used at Florance Street School. They were checked against the word list of the Manwiller Word Recognition Tests and the Durrell Analysis of Reading Difficulty and approved by the first-grade teachers. Since this technique was used for testing rapidity and accuracy of word perception, measures were taken to assure rates of exposure which would give the child only enough time for just one look and one trial to a word. The resulting rate averaged one-half second.

Related Literature.--This review of related literature presents information from studies which have (1) given insight into the major roles of word recognition, oral reading and perception in beginning reading programs and (2) reported findings which have pertinence for the present study.

Quick perception of a stock of sight words is emphasized in major reading programs outlined by specialists who base their proposals on extended studies.[1,2,3] They identify as one of the first instructional tasks that

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[1]Edward Dolch, Problems in Reading, (Champaign, Illinois: 1948), p. 1 (Garrard Press).

[2]Clarence Stone, Progress in Primary Reading, 1950.

[3]Miles A. Tinker, Teaching Elementary Reading, New York: Appleton-Century-Crofts, Inc., 1952, pp. 86-94.

of guiding the pupil in acquiring a supply of sight words needed for assuring success in the beginning of formal reading.[1] These sight words consist of names of common things: colors, actions and also the more common and frequently used adjectives, conjunctions, prepositions, pronouns, and adverbs. Dolch,[2] through analysis of word lists for primary grades, has compiled a basic sight vocabulary of 220 words, composed of common service words used in all writing. In addition he has done a list of 95 of the most common nouns. Stone[3] has argued that these more commonly occurring nouns should be in a basic list. Regardless of differences of opinion in listings, the findings of research permit the conclusion that quick perception of a basic list of words is essential to success in the majority of current beginning reading programs.

This prevailing trend in reliance upon quick perception of words which have rich meaning for pupils is recognized as a psychologically valid approach in early reading experiences. Perceiving is a fundamental kind of learning. It is active in nature and constitutes the use of eyes, ears and all other senses which may give meaning to an experience. This line of reasoning accounts for the fact that in a discussion of reading methods of yesterday and today, Adams, Gray and Reese say:

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[1]Margaret McKim, Guiding Growth in Reading, New York: The Macmillan Company, 1955, p. 117.

[2]Edward Dolch, "Test Word Knowledge vs. Frequency Counts," Journal of Educational Research, 44: 457-470, (March, 1951).

[3]Op. cit.

> Instead of beginning with a known word and pronouncing it, the old system began with a fragment and built a word upon it layer by layer, i.e., through synthesis. Thus, the old method emphasized sounding, whereas today we pronounce the whole word. A functional unit, the word, is our starting point.[1]
>
> . . .History has taught us also, that the emphasis in beginning reading should be placed on meaning; instead of starting a child off with utterly strange letters of the alphabet, words familiar to the child from his spoken vocabulary are used in his first contacts with reading.[2]

In the major portion of the literature the term, "word recognition," goes a step further than quick perception or identification of the printed symbol and involves some level of word analysis. Tinker identifies picture clues, verbal context clues, word form clues, phonetic analysis, and structural analysis as facets of the process of recognition. More specifically, Broom and others list tasks which beginning readers seem capable of mastering. They explain that word recognition is the basic skill to be mastered in beginning reading; it is needed to interpret the meanings of new words that recur in different language patterns. Several methods may be used in attempting to solve a word that is not immediately recognized: (1) the word may be sounded out and then blended to get the pronunciation; (2) the size and shape of the word may serve as clues; (3) the resemblance of the word to another which is already known may be noticed. The use of context clues is believed to be one of the most important word recognition aids to be emphasized from the time the child is first introduced to reading.[3]

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[1]Fay Adams, Lillian Gray and Dora Reese, Teaching Children to Read. (New York, 1949), p. 325.

[2]Ibid., p. 53.

[3]M. E. Broom, Effective Reading Instruction, (New York, 1951), pp. 227-229.

It is realized, however, that these methods may be defeated by persistent errors which thwart accuracy in word recognition. Studies show that errors on the beginnings of words are less common than errors on the middle of words and on word endings. Endings such as "es," "ed," "ly," and "ing" are too often ignored. Among the most common confusions are: "b," "d," "p" and "q;" "l," "t," " f" and "k;" uand "n;" mand "w," and the vowel errors, "a" and "e."[1] Words with initial consonant blends were found to be very difficult to recognize. Words composed of more than four letters and words with consonant beginnings and endings were found to have a high degree of difficulty.[2]

The major role of oral reading is variously assessed by different students of the subject.[3] Several studies assume the position taken by Gray who said that oral reading is probably the more natural beginning approach for teaching reading, as the child already has an extensive oral vocabulary. It should be emphasized that the kind of oral reading that is to be encouraged in the early grades is not a "performance" in the sense of an exhibition. Its chief function is to develop worthwhile skills in communicating ideas read from the printed page.[4]

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[1]Edward W. Dolch, The Efficiency of Primers in Teaching Word Recognition, Journal of Education Research, 28; 271 (December, 1934).

[2]Mary E. Franklin, "The Diagnosis and Treatment of Reading Disabilities of Twenty-eight First-Grade Pupils, Unpublished Masters Thesis," Department of Education, Atlanta University, Atlanta (1947).

[3]C. T. Gray, The Purpose and Value of Oral Reading in the Elementary School, Elementary School Journal, 29: 335-343 (January, 1929).

[4]Ibid.

The following purposes of oral reading provide further insight into its nature. They include: (a) correct pronunciation of all words, (b) clear, correct articulation, (c) speaking loudly enough to be heard by every one listening, (d) using emphasis to make meaning clear, (e) grouping words into meaningful thought groups with pauses between, (f) reading slow enough to be understood and to avoid running words together, (g) speaking in a natural voice that is as pleasing as the child can make it.

On the other hand, McDade and Buswell advocate eliminating oral reading completely in the interest of eliminating inner speech and vocalization.[1]

Hildreth[2] assumes a middle position which asserts that oral and silent reading should be stressed equally in first-grade instruction. This position also embraces the idea that oral expression constitutes the foundation for associating meaning with printed symbols.

Mary Franklin did her research at Atlanta University in 1947; a few years prior to this Marion Ruth Perkins did a research at the same University. For further insight, the writer wishes to relate some facts relative to the present study.

The purpose of Franklin's study was to find causes for non-promotions among a group of twenty-eight pupils, and to analyze these causes in terms of reading disabilities, resulting from the operation of certain mental, physical, social and educational factors; it proposed to treat disabilities of an educational nature with remedial measures; it proposes to predict the

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[1]Buswell and McDade, Op. cit.

[2]Gertrude H. Hildreth, "Reading Programs in the Early Primary Period," Reading in the Elementary School. Forty-eighth Yearbook of the National Society for the Study of Education. Part II. (Chicago 1949), pp. 54-92.

reading grade status of the pupils at the end of the study.[1]

The findings based on diagnosis and treatment of reading disabilities of twenty-eight pupils of Joseph Craig School are few but most significant. Evidence points to the fact that the reading optimum time of beginning reading with this group of non-promotions was not entirely dependent upon the mental age of the 6 years and 6 months, other things being equal, but it was also dependent upon the nature of the child's slow learning capacity, and in a large measure was determined by the nature of the reading program, regular attendance, small instructional group and a teacher who was interested in helping the slow learner to overcome his difficulties.

The pupils had been given thorough preparation for beginning reading before they were introduced to it.

> In general, over a period of six years, only six pupils of the group had a mental age of 6.6 months above.
>
> Children with low mentality, but who are ready to read encounter fewer difficulties in reading when grouped homogeneously.

Pupils having physical defects progressed as well and as fast as those free from physical defects. It seems safe to conclude, therefore, that disabilities encountered in reading readiness may be overcome by diagnosis and treatment or by adjustment to them.

Perkins' problem involved pupils who were retarded in recognition of words, and efforts to improve the instruction. This study attempted to ascertain by means of experimentation the effectiveness of three methods of teaching word recognition: namely, individual method, group method, and in-

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[1]Mary E. Franklin, "The Diagnosis and Treatment of Reading Disabilities of Twenty-eight First-Grade Pupils," Unpublished Masters Thesis, Department of Education, Atlanta University, Atlanta (1947).

dividual group method. In her conclusions the following findings were stated:

1. Results were more beneficial in word recognition when interest, abilities, and needs of the pupils were considered.

2. Words with initial consonant blends were found to be very difficult to recognize.

3. Words composed of more than four letters with consonant beginnings and endings were found to have high degrees of difficulty.

4. The word method is highly recommended in teaching word recognition.

5. All three methods can be classified as desirable methods for teaching word recognition from which satisfying results might be derived.

6. According to chance the individual group revealed the greatest possibility for superiority over other groups.[1]

Summary of Related Literature.--The review of related literature led to the following conclusions:

1. It may be substantially assumed that quick perception of words, recognition of words by some form of analysis and oral reading are intricately related.

2. It may be reasonably assumed that oral reading provides insight for correct pronunciation, clear articulation and grouping words into meaningful thought groups.

3. It can be justly assumed that contextual clues are in complete agreement with quick word recognition and should be emphasized in an initial reading program.

4. It may be assumed that oral reading and oral expressions constitute the foundation for associating comprehension with the printed symbols.

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[1]Marion Ruth Perkins, "The Comparison of the Effectiveness of Three Methods of Teaching Word Recognition to Fifty-four First-Grade Pupils: Individual Method, Group Method and Individual Group Method," Unpublished Masters Thesis, Department of Education, Atlanta University, Atlanta (1943).

The foregoing conclusions regarding perception, word recognition and oral reading, and the limited amount of research reported concerning them exerted tremendous influence upon the presentation and interpretation of data which follow.

CHAPTER II

PRESENTATION AND INTERPRETATION OF DATA

Introductory Statement.--The problem involved in this study was to determine the relationship of oral reading and word recognition abilities of first-grade pupils to their performances on tests of rate and accuracy of word perception. This chapter presents and interprets data required by the purposes of the study. Subsequent sections answer each question raised in Chapter I.

General Levels of Word Recognition.--Determination of the pupils' general level of word recognition entailed (1) using results from separate tests of ability to recognize words in isolation and context and (2) averaging these components in order to obtain some overall indication of vocabulary power. The specific findings follow.

Results of Performances on the Metropolitan Achievement Test of Word Recognition in Context

Data pertaining to scores obtained by the group on tests of recognition of words in context are presented in Table 1 and Figures 1 and 2. As is shown there, the scores ranged from 11 to 26; the median score was 17.2; the mean, 17.6; its standard error, 0.59; and the standard deviation, 3.56. There were 12 cases above the mean and 15 below it. Consideration of the findings and graphical representations indicated that the distribution of scores approached normality and revealed considerable homogeneity in design. These observations led to the conclusion that at the end of nine months these first-grade pupils had a mean grade equivalent of eight months and, therefore, rated one month below the level of expectancy established by

the norms for this test of word recognition in context.

TABLE 1

FREQUENCY DISTRIBUTION OF SCORES MADE BY THIRTY-EIGHT PUPILS ON THE METROPOLITAN ACHIEVEMENT TEST OF WORD MEANING

Scores	Frequency	Per Cent
25 - 26	1	2.6
23 - 24	3	7.9
21 - 22	4	10.5
19 - 20	4	10.5
17 - 18	11	29.0
15 - 16	6	15.8
13 - 14	6	15.8
11 - 12	3	7.9
Total	38	100.0

Range of Scores	16
Mean	17.6
Median	17.2
Standard Error of Mean	0.59
Standard Deviation	3.56

When these data were considered in terms of sex the results were strikingly similar. The boys' scores ranged from 11 to 26; the median score was 17.5; the mean, 18.1; its standard error, 1.08; and the standard deviation, 4.44. There were 8 cases above the mean and 8 below it. The girls' scores ranged from 11 to 24; the median score was 17.2; the mean, 18.1; its standard error, 0.46; and the standard deviation, 3.56. There were 4 cases above the mean and 6 cases below it.

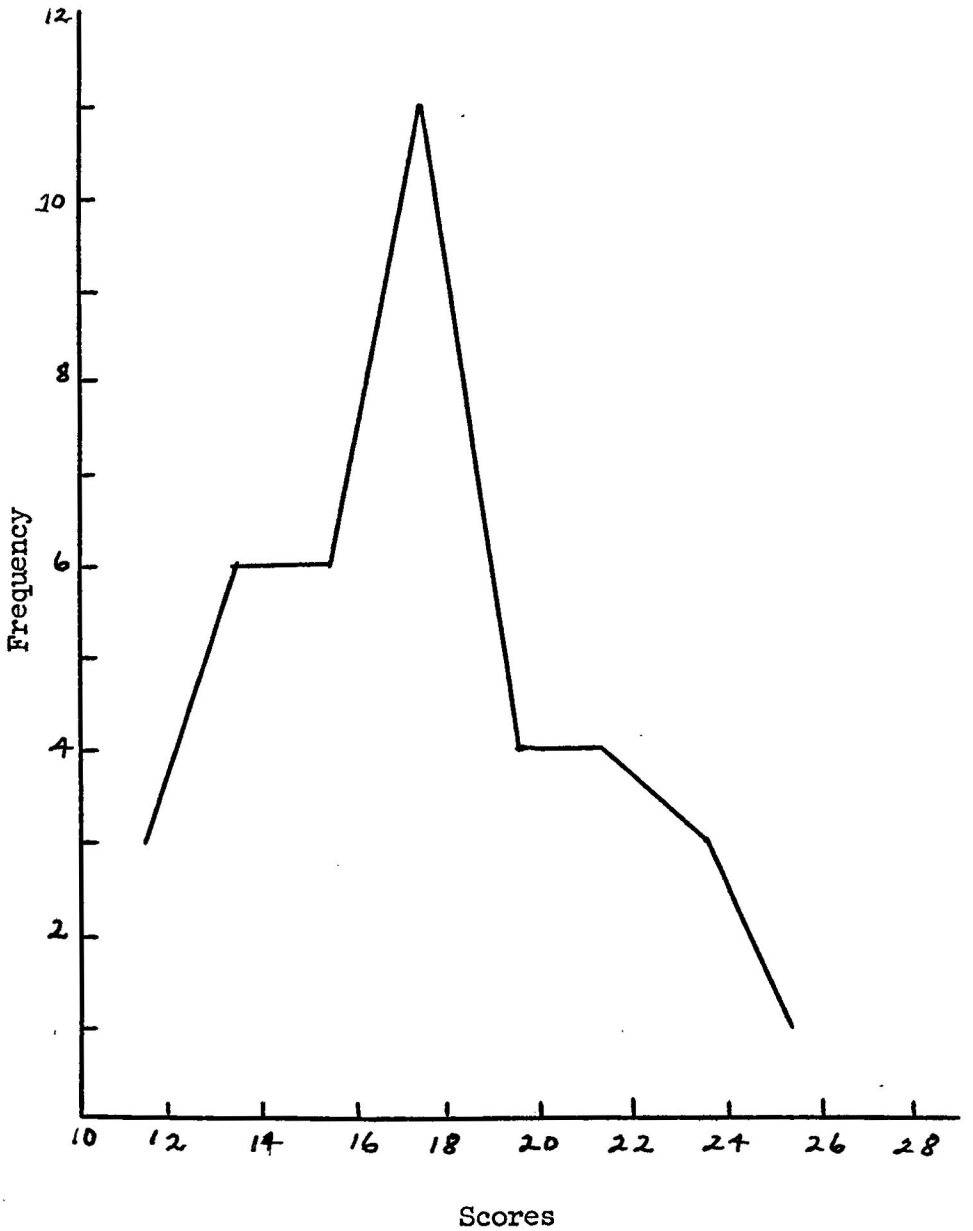

Fig. 1.--Frequency Polygon of the Scores Made by Thirty-eight Pupils on the Metropolitan Achievement Test in Word Meaning

TABLE 2

SUMMARY OF DATA DERIVED FROM THE SCORES OBTAINED BY THE THIRTY-EIGHT SUBJECTS ON WORD RECOGNITION IN CONTEXT. METROPOLITAN ACHIEVEMENT TEST ON WORD MEANING

Score	Frequency		
	Boys	Girls	Total
25 - 26	1		1
23 - 24	2	1	3
21 - 22	3	1	4
19 - 20	2	2	4
17 - 18	2	9	11
15 - 16	3	3	6
13 - 14	4	2	6
11 - 12	1	2	3
Totals	18	20	38
Range of Scores	15	14	16
Mean	18.1	18.1	17.6
Median	17.5	17.2	17.2
Standard Error of Mean	1.08	0.46	0.59
Standard Deviation	4.44	2.0	3.56

Table 3 presents data regarding the possible differences between performances of boys and girls on tests of word recognition in context. The difference between means was 0.0; the standard error of the difference between means was 1.17; and the "t" score was 0.0. When this result was compared with the ratio, 2.73, required for significance at the .01 level of confidence, it was concluded that there was no significant difference between the performances of the two groups of boys and girls on tests of vo-

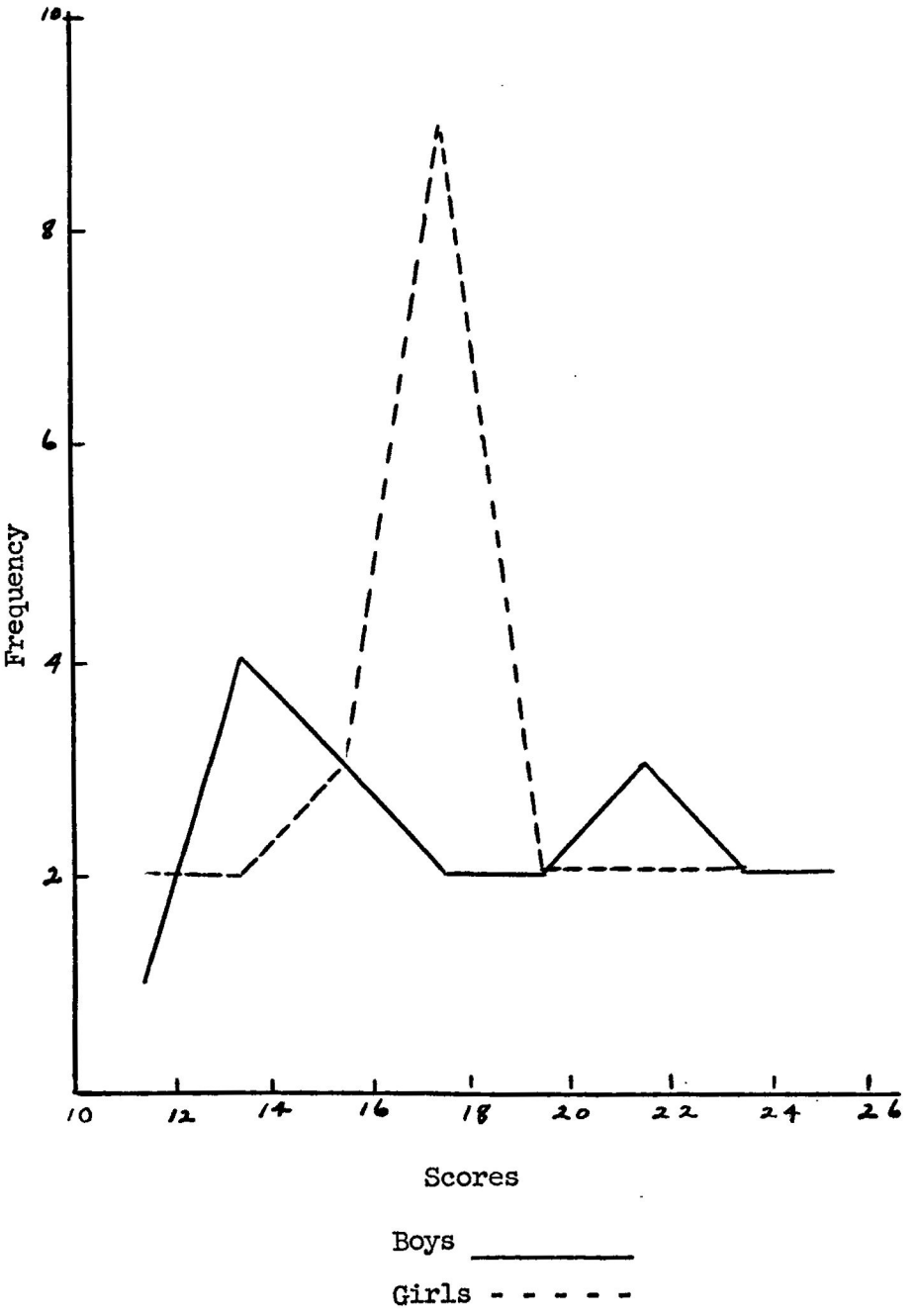

Fig. 2.--Frequency Polygon of the Scores Made by the Eighteen Boys and Twenty Girls on the Metropolitan Achievement Test on Word Meaning

cabulary in context.

TABLE 3

SUMMARY OF DATA DERIVED FROM COMPUTATION OF THE SIGNIFICANCE OF THE DIFFERENCE BETWEEN MEAN PERFORMANCES OF FIRST-GRADE BOYS AND GIRLS ON TESTS OF WORD RECOGNITION IN CONTEXT

Measures	Boys		Girls
M_1 - M_2	18.1		18.1
Difference		0.0	
S. D.	4.49		2.0
S. $E._M$	1.08		0.46
σ_{M_1} - σ_{M_2}		1.17	
"t"		0.0	
Required "t" .01 level		2.73	

Results of Pupils' Performances on the Manwiller Test of Words in Isolation

Data relative to scores obtained by the group on tests of recognition of words in isolation are presented in Table 4 and Figure 3. As is shown there, the scores ranged from 6 to 25; the median score was 14.5; the mean, 15.7; its standard error, 0.89; and the standard deviation 5.4. There were 13 cases above the mean and 19 cases below it. The boys' scores ranged from 6 to 25; the median score was 14.5; the mean, 14.8; its standard error, 1.33; and the standard deviation, 5.5. The girls' scores ranged from 6 to 25; the median score was 14.5; the mean, 15.4; its standard error, 0.89; and a standard deviation, 5.3. There were 6 cases above the mean and 10 cases below the mean.

TABLE 4

SUMMARY OF DATA DERIVED FROM THE SCORES OBTAINED BY THE THIRTY-EIGHT SUBJECTS ON WORD RECOGNITION IN ISOLATION ON THE MANWILLER WORD RECOGNITION TEST

Score	Frequency			Average Grade Placement
	Boys	Girls	Total	
25 - 26	2	1	3	3.0
23 - 24		3	3	3.0
21 - 22				
19 - 20	3	1	4	2.2
17 - 18	2	1	3	2.0
15 - 16	2	4	6	1.9
13 - 14	2	5	7	1.8
11 - 12	2	2	4	1.7
9 - 10	3	1	4	1.6
7 - 8	1	1	2	1.5
5 - 6	1	1	2	1.4
Totals	18	20	38	
Range of Scores		20	20	20
Mean		14.8	15.4	15.7
Median		14.5	14.5	14.5
Standard Deviation		5.5	5.3	5.4
Standard Error of Mean		1.33	1.29	.89

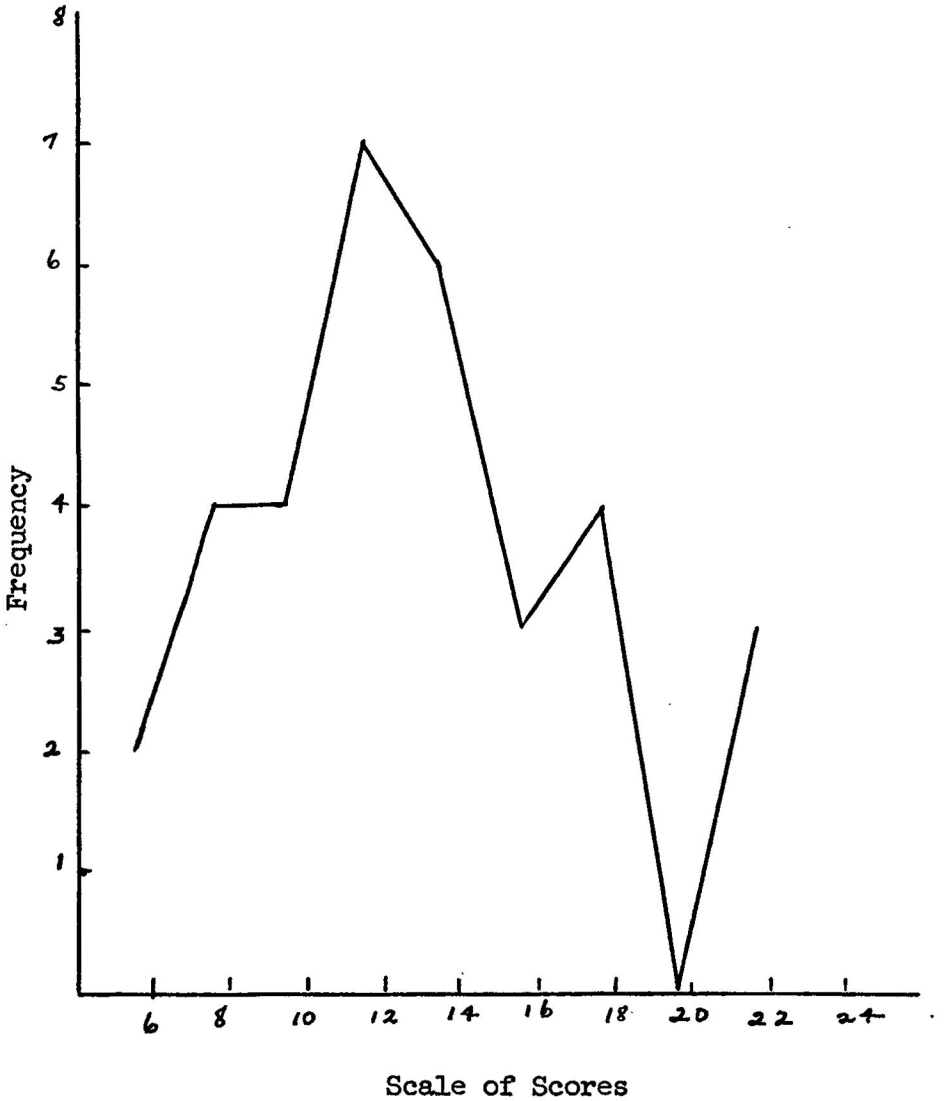

Fig. 3.--Frequency Polygon of the Scores Made by the Thirty-eight Subjects on Words in Isolation on the Manwiller Word Recognition Test.

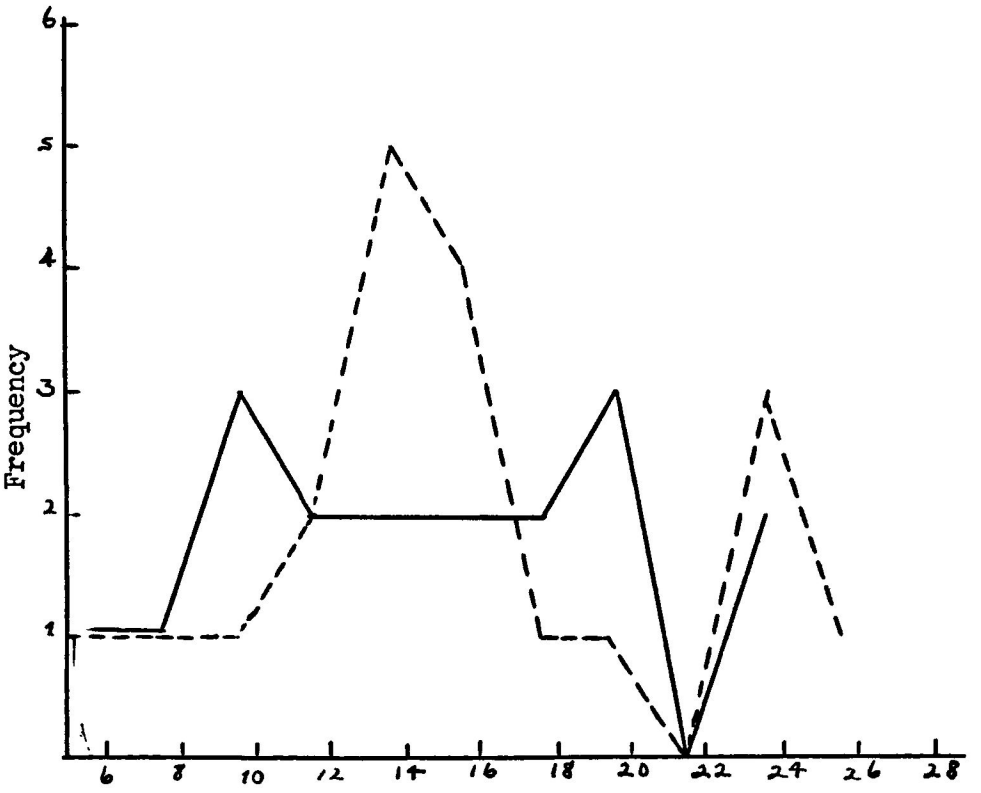

Fig. 4.--Frequency Polygon of the Scores Made by the Eighteen Boys and Twenty Girls on Words in Isolation on the Manwiller Word Recognition Test.

TABLE 5

SUMMARY OF DATA DERIVED FROM COMPUTATION OF THE SIGNIFICANCE OF THE DIFFERENCE BETWEEN MEAN PERFORMANCES OF FIRST-GRADE BOYS AND GIRLS ON TESTS OF WORD RECOGNITION IN ISOLATION

Measures	Boys		Girls
Mean	14.8		15.4
$M_1 - M_2$		0.6	
S. $E._M$	1.33		1.29
$\sigma_{M_1} - \sigma_{M_2}$		1.85	
"t"		0.32	
Required "t" .01 level of confidence			

General considerations of these findings showed the scores to be more or less normally distributed and rather homogeneous in pattern. These observations led to the conclusion that the mean grade placement was about a month below the grade placement of the group upon which the test was standardized.

When the latter data were considered according to sex the results were strikingly similar to the total picture. The scores for boys and girls yielded a difference between the means of 0.6; a standard error of the difference between the means of 1.85; and a "t" ratio of 0.32. It was concluded that at the .01 level of confidence, there was no significant difference in the mean scores made by boys and girls on this test of recognition of words in isolation.

Results of Pupils' Combined Performances on the Metropolitan Achievement Test and the Manwiller Word Recognition Test

Data derived from computations and averaging of T-scores of the Metropolitan and Manwiller Test results are presented in Tables 6 and 7 and Figures 5 and 6. As is shown there, the T-scores ranged from 22.4 to 71.8; the median score was 53.3; the mean score, 54.8; its standard error, 1.8; and the standard deviation, 10.5. There were 9 cases above the mean and 16 cases below it. These findings and graphical representations did not indicate the group to be as nearly typical as either set of scores taken separately. It was found, however, that the wider scatter and discrepancy between cases above and below the mean did not cause a serious deviation from normality. The latter observation led to the conclusion that the average grade placement for combined use of context and isolated methods of word attack for this first-grade group was eight months in the first grade.

Analysis of the combined scores according to sex revealed patterns similar to the total group picture. As shown in Tables 6 and 7 and Figures 5 and 6, the boys' scores ranged from 22.4 to 71.8; the median score was 52.12; the mean score, 51.3; its standard error, 2.54; and the standard deviation, 10.5. There were 5 cases above the mean and 7 cases below it. The girls' scores ranged from 24.5 to 65, with a median score of 51.2; a mean score of 47.5; its standard error of 2.32; and a standard deviation of 10.1. There were 11 cases above the mean and 7 cases below it.

When the data were considered according to sex, the results were similar to the total picture. The scores for the boys and girls yielded a difference between the means of 3.8; a standard error of the difference between the means of 1.09; and a "t" ratio of 0.35. It was concluded that

TABLE 6

FREQUENCY DISTRIBUTION OF AVERAGE T-SCORES MADE BY THIRTY-EIGHT PUPILS ON THE MANWILLER WORD RECOGNITION AND THE METROPOLITAN ACHIEVEMENT TEST OF WORD RECOGNITION

Score	Frequency	Per Cent
75.5 - 80.4		
70.5 - 75.4	1	2.6
65.5 - 70.4		
60.5 - 65.4	4	10.5
55.5 - 60.4	4	10.5
50.5 - 55.4	13	34.3
45.5 - 50.4	5	13.2
40.5 - 45.4	6	15.7
35.5 - 40.4	2	5.3
30.5 - 35.4		
25.5 - 30.4	1	2.6
20.5 - 25.4	2	5.3
Total	38	100.0

Range of Scores	48.2
Mean	54.8
Median	53.3
Standard Error of Mean	1.8
Standard Deviation	10.5

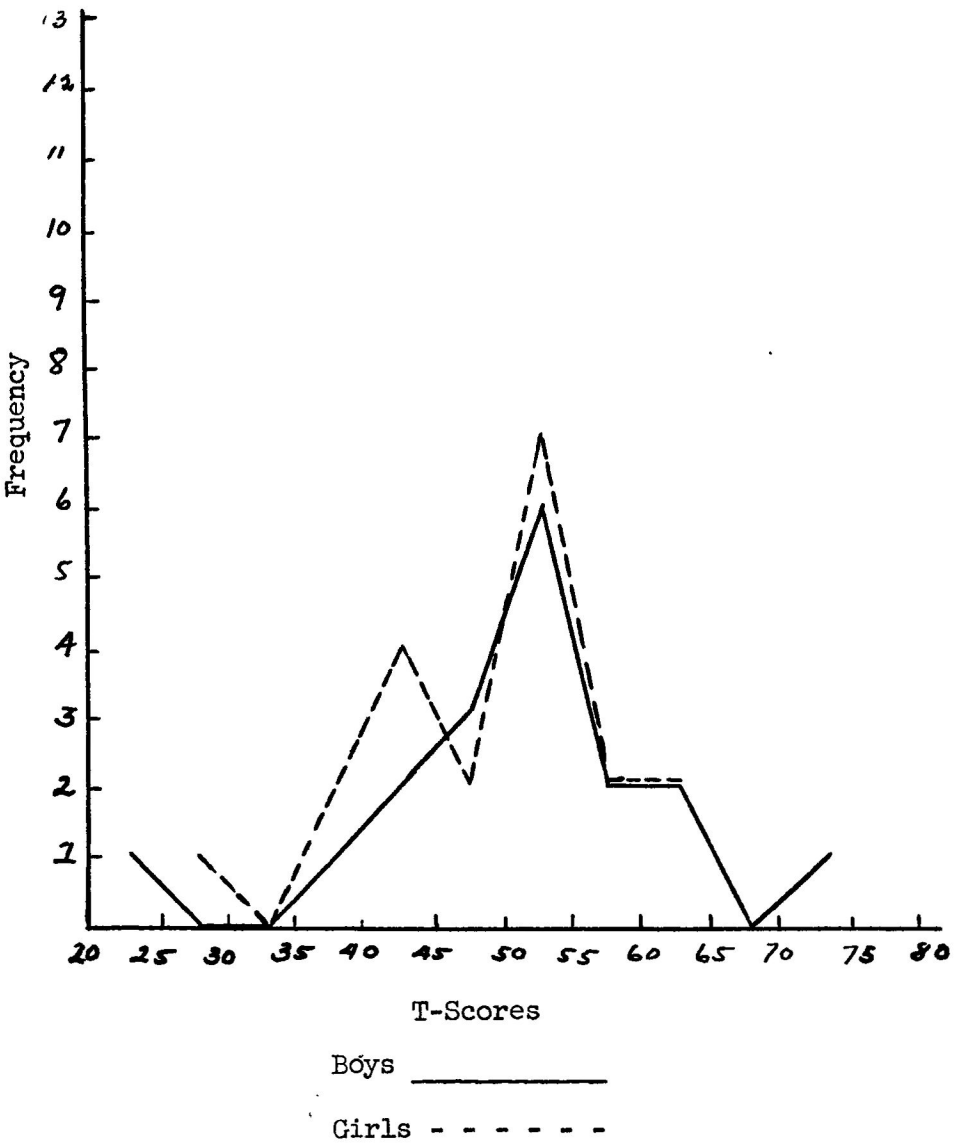

Fig. 5.--Frequency Polygon of the Scores Made by the Twenty Girls and Eighteen Boys on the Manwiller Word Recognition Test and the Metropolitan Achievement Test.

TABLE 7

FREQUENCY DISTRIBUTION SHOWING THE AVERAGE T-SCORES MADE BY EIGHTEEN BOYS AND TWENTY GIRLS ON THE MANWILLER WORD RECOGNITION AND THE METROPOLITAN ACHIEVEMENT WORD RECOGNITION TESTS

Score	Boys		Girls	
	Frequency	Per Cent	Frequency	Per Cent
75.5 - 80.4				
70.5 - 75.4	1	5.6		
65.5 - 70.4				
60.5 - 65.4	2	11.1	2	10.0
55.5 - 60.4	2	11.1	2	10.0
50.5 - 55.4	6	33.3	7	35.0
45.5 - 50.4	3	16.6	2	10.0
40.5 - 45.4	2	11.1	4	20.0
35.5 - 40.4	1	5.6	1	5.0
30.5 - 35.4				
25.5 - 30.4			1	5.0
20.5 - 25.4	1	5.6	1	5.0
Total	18	100.0	20	100.0

Range	50.4	Range	40.5
Mean	51.30	Mean	47.5
Median	52.12	Median	51.2
Standard Error of Means	2.54	Standard Error of Means	2.32
Standard Deviation	10.5	Standard Deviation	10.1

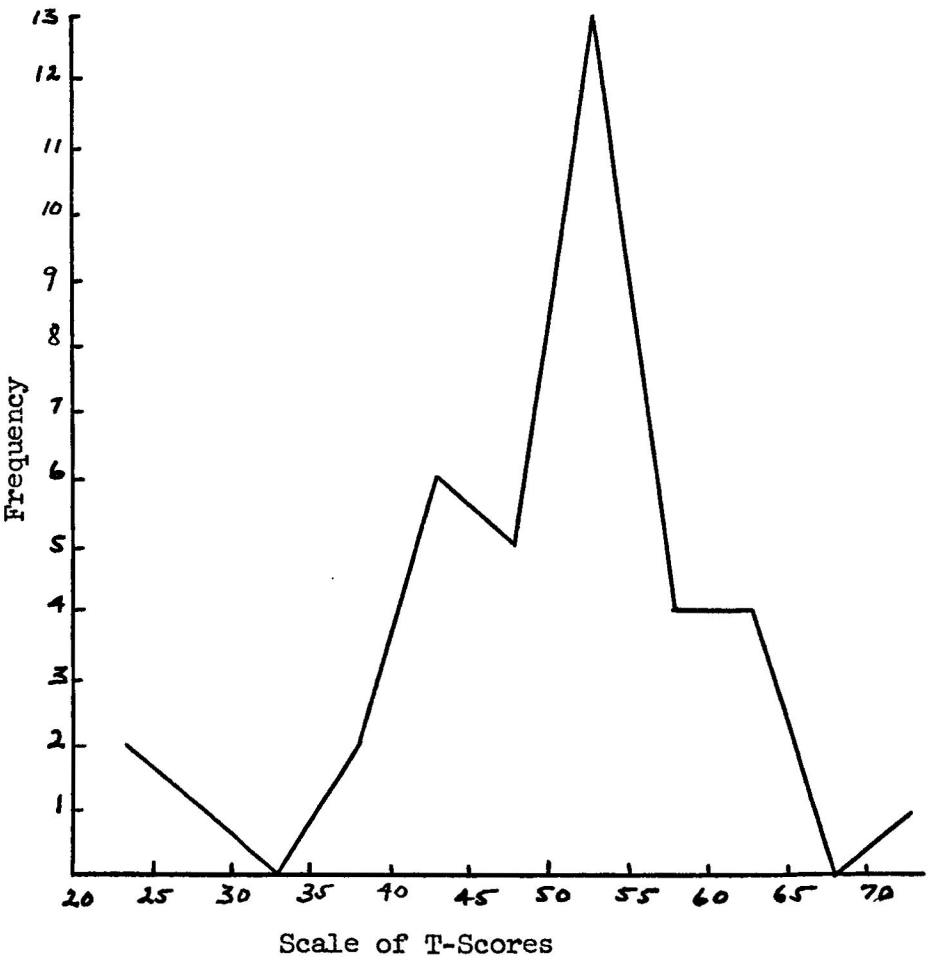

Fig. 6.--Frequency Polygon of the Scores Made by the Thirty-eight Subjects on the Manwiller Word Recognition Test and the Metropolitan Achievement Test.

at the .01 level of confidence there was no significant difference in the mean scores made by boys and girls on tests of general levels of word recognition.

TABLE 8

SUMMARY OF DATA DERIVED FROM COMPUTATION OF THE SIGNIFICANCE OF THE DIFFERENCES BETWEEN MEAN PERFORMANCES OF FIRST-GRADE BOYS AND GIRLS ON TESTS OF GENERAL LEVELS OF WORD RECOGNITION

Measures	Boys		Girls
Mean	51.3		47.5
$M_1 - M_2$		3.8	
S. D.	10.5		10.1
$\sigma M_1 - \sigma M_2$		1.08	
"t"		0.35	
Required "t" at .01 level of confidence		2.73	

Results of Pupils' Performances on the Oral Reading Section of Durrell Analysis of Reading Difficulty.--Data relative to scores obtained by the group on tests of oral reading are presented in Table 2 and Figures 3 and 4. As is revealed there the scores ranged from 16 to 39; the median score was 28.7; the mean, 28.2; its standard error, 0.88; and the standard deviation, 5.32. There were 16 cases above the mean and 15 cases below it. These observations further showed the scores to be more or less normally distributed and definitely homogeneous in pattern. These observations also led to the conclusion that the mean grade equivalent of the group was at the first-grade level.

The boys' scores ranged from 17 to 39; the median score was 28.8; the mean, 28.4; their standard error, 1.44; and the standard deviation, 5.98. There were 8 cases above the mean and 7 cases below it. The girls' scores ranged from 16 to 37; the median score, 26.8, the mean, 28.0; their standard error, 1.06; and the standard deviation, 4.64. There were 8 cases above the mean and 8 cases below it.

As shown in Table 8, the scores of the boys and girls revealed a difference of the means of 0.4; a standard error of the differences of the means of 1.79; and a "t" ratio of 0.22. Compared with the required ratio of 2.73 at the .01 level of confidence, this ratio indicated that these boys and girls were not significantly different in mean oral reading performances at a grade equivalent level one.

Results of Pupils' Performances on the Tachistoscopic Test.--Data relative to scores obtained by the group on tests of rate and accuracy in word perception are presented in Table 8 and Figures 11 and 12. As is shown there, the scores ranged from 20 to 72; the median score was 42.0; the mean, 42.3; its standard error, 2.2; and the standard deviation, 13.1. There were 16 cases above the mean and 16 cases below it.

General consideration of the findings showed the scores to be more or less normally distributed and homogeneous in pattern. Further observations led to the conclusion that the mean grade equivalent of the total group was at first-grade level in quick perception of words of first-reader difficulty.

Taken separately, the boys' scores ranged from 20 to 72; the median score was 42.8; the mean, 42.8; its standard error, 3.5; and the standard deviation, 14.5. There were 8 cases above the mean and 8 cases below it.

TABLE 9

SUMMARY OF THE DATA DERIVED FROM THE RESULTS OF THE PERFORMANCE OF THE THIRTY-EIGHT PUPILS' SCORES OF THE DURRELL ANALYSIS TEST OF ORAL READING

Score	Frequency			
	Boys	Girls	Total	Per Cent
38 - 39	1		1	2.6
36 - 37	1	1	2	5.3
34 - 35	2	1	3	7.9
32 - 33	2	2	4	10.5
30 - 31	2	4	6	15.8
28 - 29	3	4	7	18.4
26 - 27	2	3	5	13.2
24 - 25	1	2	3	7.9
22 - 23	1	1	2	5.3
20 - 21	1	1	2	5.3
18 - 19	1		1	2.6
16 - 17	1	1	2	5.3
Totals	18	20	38	
Range		23	22	23
Mean		28.4	28.0	28.2
Median		28.8	26.8	28.7
Standard Deviation		5.98	4.64	5.32
Standard Error of Mean		1.44	1.06	0.88

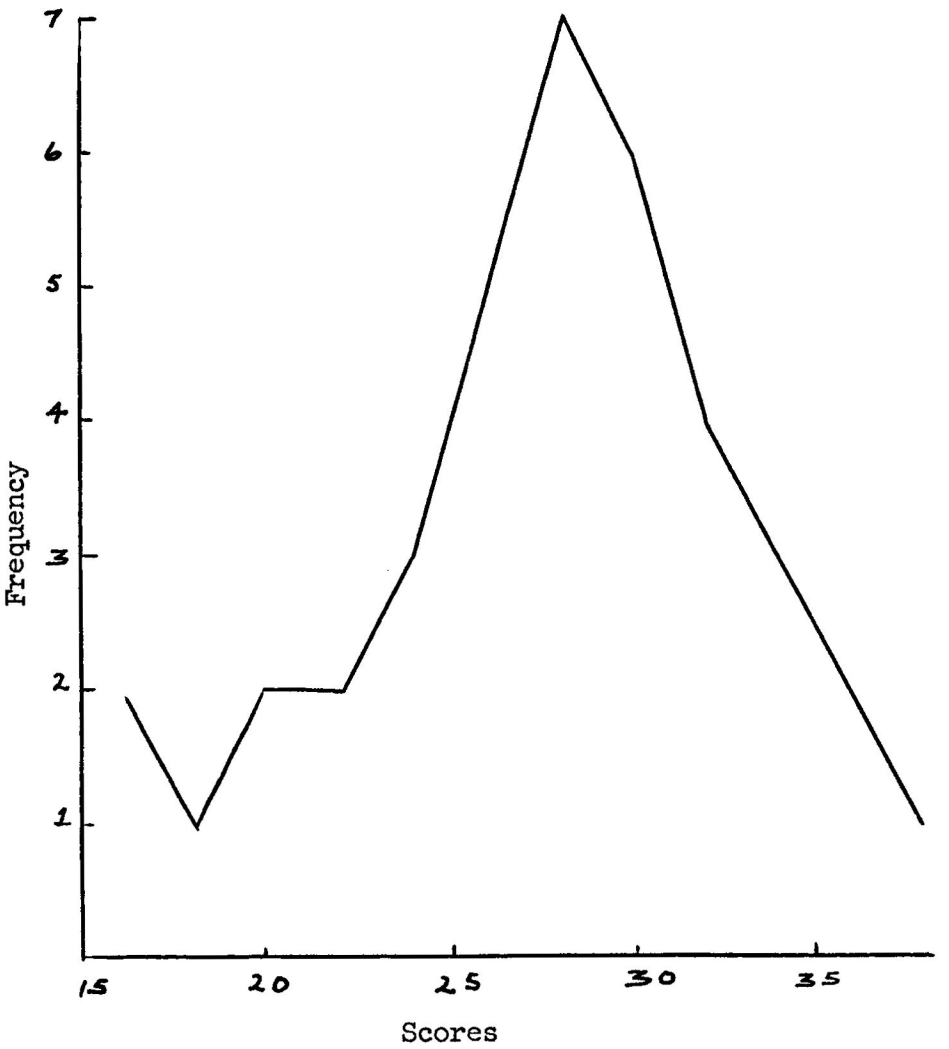

Fig. 7.--Frequency Polygon of Scores Made by Thirty-eight Pupils on the Oral Reading Section of Durrell Analysis of Reading Difficulties Test.

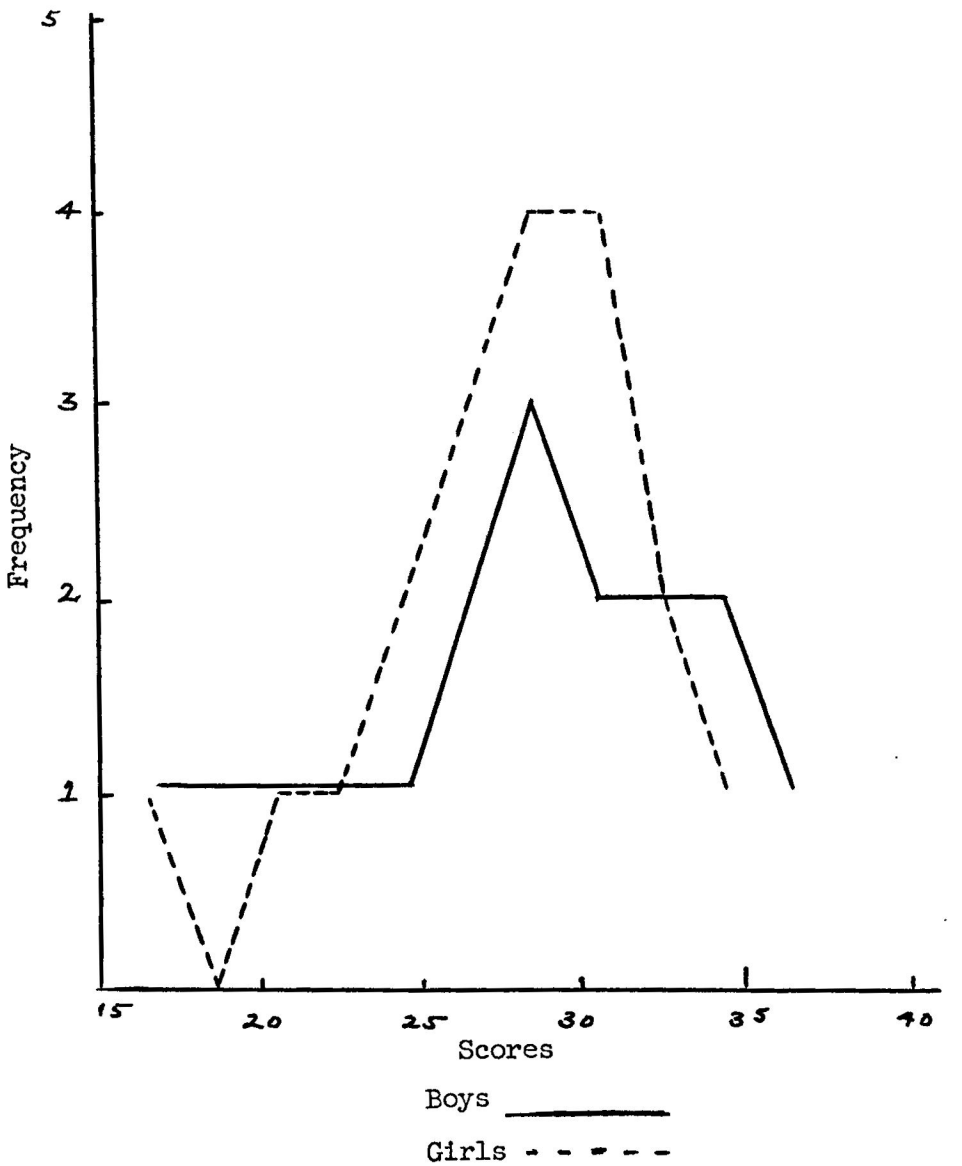

Fig. 8.--Frequency Polygon of the Scores Made by the Eighteen Boys and Twenty Girls on the Durrell Analysis Test of Oral Reading.

TABLE 10

SUMMARY OF DATA DERIVED FROM COMPUTATION OF THE SIGNIFICANCE OF THE DIFFERENCE BETWEEN MEAN PERFORMANCES OF FIRST-GRADE BOYS AND GIRLS ON TESTS OF ORAL READING

Measures	Boys		Girls
Mean	28.4		28.0
$M_1 - M_2$		0.4	
S. D.	5.98		4.64
S. $E._M$	1.44		1.06
$\sigma M_1 - \sigma M_2$		1.79	
"t"		0.22	
Required "t" at .01 level		2.73	

The scores for the girls' ranged from 24 to 65; the median score was 42.0; a mean, 42.7; its standard error, 2.9; and the standard deviation, 12.8. There were 8 cases above the mean and 8 cases below it.

Data revealed that the mean scores of the boys and girls showed the difference of 0.1; the standard error of the difference of the mean was 4.56; and the "t" ratio, 0.002. At the .01 level of confidence, there was no significant difference in the scores obtained by sex on the tests of quick perception of words of first-reader difficulty.

Results of Measures of Relationship Between the Tachistoscopic Test and General Levels of Word Recognition.--The data on the Tachistoscopic Test in general level of word recognition appeared in Table 13. Scores

TABLE 11

SUMMARY OF DATA DERIVED FROM THE SCORES OBTAINED BY THE EIGHTEEN BOYS AND TWENTY GIRLS ON THE RATE AND ACCURACY OF PERCEPTION ON THE TACHISTOSCOPIC TEST

Score	Frequency		
	Boys	Girls	Total
70 - 74	1		1
65 - 69	1	2	3
60 - 64		1	1
55 - 59	1	1	2
50 - 54	1	1	2
45 - 49	4	3	7
40 - 44	2	4	6
35 - 39		3	3
30 - 34	4	2	6
25 - 29	1	2	3
20 - 24	3	1	4
Total	18	20	38
Range	53	42	53
Mean	42.8	42.7	42.3
Median	42.8	42.0	42.0
Standard Deviation	14.5	12.8	13.1
Standard Error of Mean	3.5	2.9	2.2

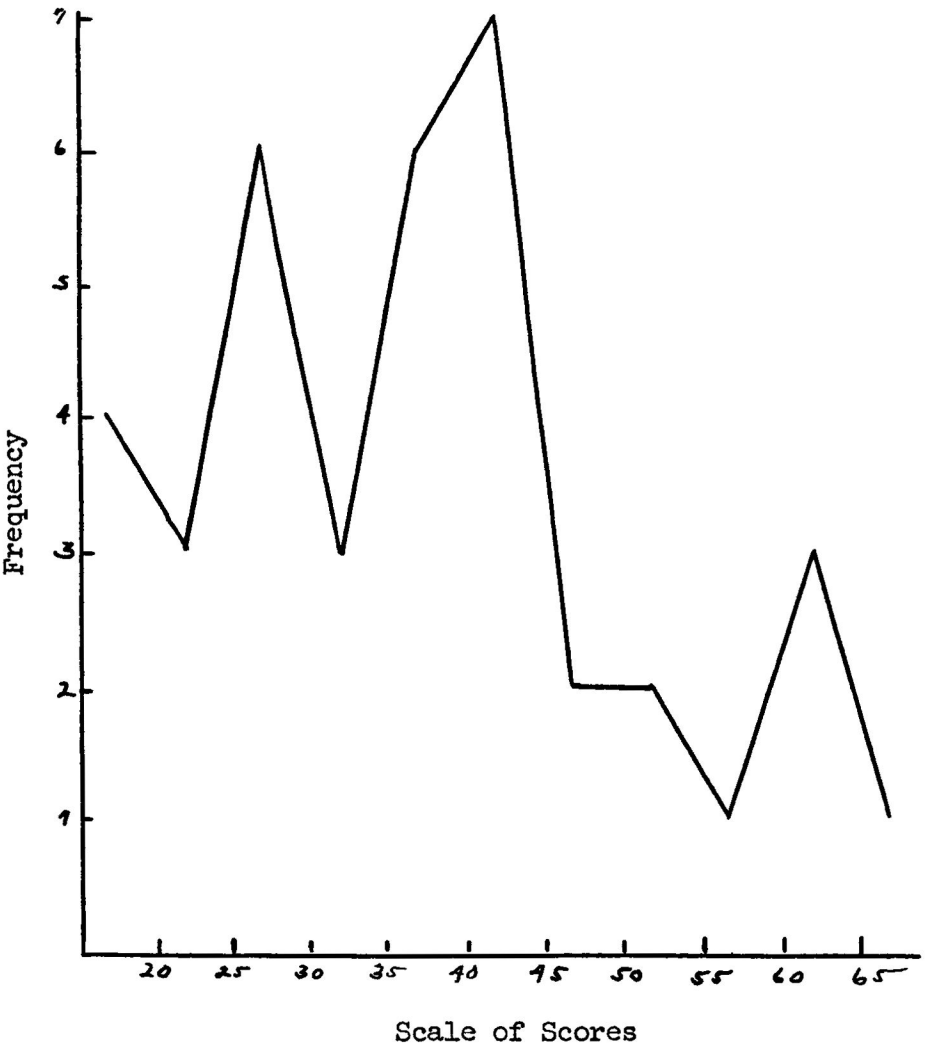

Fig. 9.--Frequency Polygon of the Scores Made by the Thirty-eight Subjects on Rate and Accuracy in Word Perception on Tachistoscopic Test.

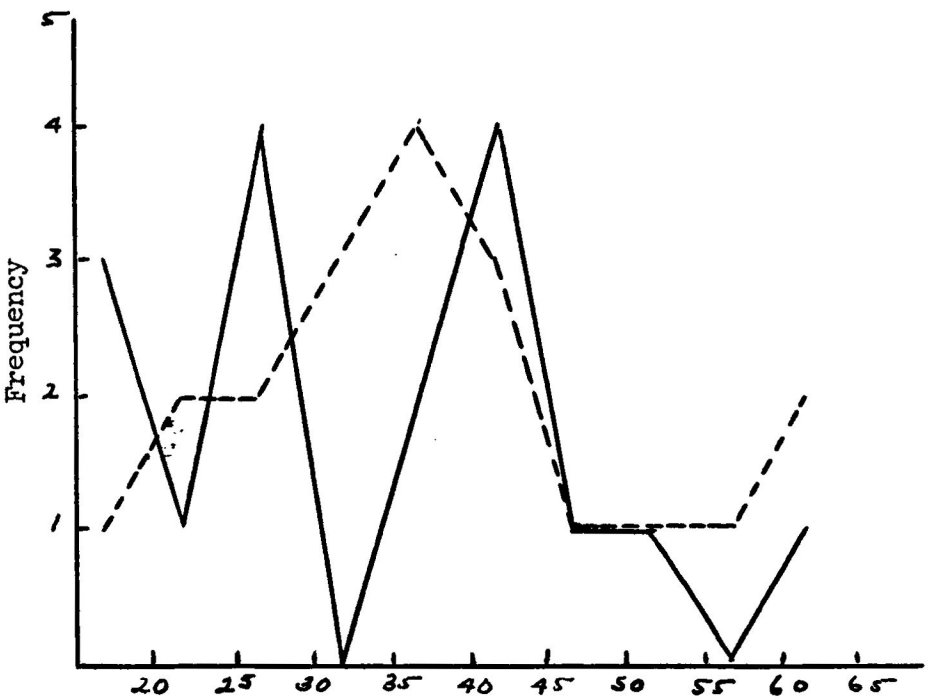

Fig. 10.--Frequency Polygon of the Scores Made by the Eighteen Boys and Twenty Girls on the Rate of Accuracy of Perception.

TABLE 12

SUMMARY OF DATA DERIVED FROM COMPUTATION OF THE SIGNIFICANCE OF THE DIFFERENCE BETWEEN MEAN PERFORMANCES OF FIRST-GRADE BOYS AND GIRLS ON TACHISTOSCOPIC TESTS

Measures	Boys		Girls
Mean	42.8		42.7
$M_1 - M_2$		0.1	
S. D.	14.5		12.8
SE_M	3.5		2.9
$\sigma M_1 - \sigma M_2$		4.56	
"t"		.0022	
Required at .01 level of confidence		2.73	

on general levels of word recognition were obtained by averaging the T-scores attained on the Metropolitan Achievement Test, "Word Recognition Section." As shown there "r" was .75. When this value was checked in a table of probability with 36 degrees of freedom, it was far above the coefficient of .412 expected at the .01 level of confidence. From these findings, it was concluded that pupils at high average and low levels of achievement in word recognition performed at highly similar levels on the tachistoscopic test.

When general word recognition and tachistoscopic test results were related in terms of sex, the boys' "r" was .82. When this value was checked in a table of probability with 16 degrees of freedom, it was far above the coefficient of .590 required for significance at the .01 level of confidence.

The girls' "r" was .75. With 18 degrees of freedom, this value was far above the expected coefficient of .561 required for significance at the .01 level of confidence.

Results of Measures of Relationship Between Tachistoscopic Test and General Oral Reading.--Data appearing in Table 13 indicated that the relationship between scores on the Tachistoscopic Test and general oral reading on the Durrell Analysis of Reading Difficulty Test was very significant. As was shown there "r" was .42. When this value was checked in a table of probability with 36 degrees of freedom, it was slightly above the coefficient of .412 required at the .01 level of confidence. From these findings, it was concluded that pupils at high average and low levels of achievement in general oral reading performed at fairly similar levels on the tachistoscopic test.

When oral reading and tachistoscopic test results were related in terms of sex as shown on Table 12, the boys' "r" was .12. When this coefficient was checked in a table of probability with 16 degrees of freedom, it was far below the coefficient of .590 required for significance at the .01 level of confidence. The girls' "r" was .25. When this value was checked in the table of probability with 18 degrees of freedom, it was far below the coefficient of .561 required for significance at the .01 level of confidence. Although the total group showed a fair positive relationship, neither of the performances of boys or girls reflected this tendency.

Results of Measures of Relationship Between the Tachistoscopic Test and Recognition of Words in Context.--Table 13 reports the data on relationship between the Tachistoscopic Test and the results on the Metropolitan Achievement Test, "Word Meaning Section." As shown there "r" was .46. When

TABLE 13

COEFFICIENTS OF CORRELATION AND THEIR STANDARD ERRORS USED AS A BASES FOR DETERMINING THE RELATIONSHIP BETWEEN PUPILS' PERFORMANCES ON THE TACHISTOSCOPIC TESTS, GENERAL LEVEL OF WORD RECOGNITION, DURRELL ANALYSIS OF ORAL READING, THE METROPOLITAN ACHIEVEMENT TEST, THE METROPOLITAN ACHIEVEMENT TEST WORD MEANING SECTION AND THE MANWILLER WORD RECOGNITION TEST

Test	Coefficient of Correlation			Standard Error		
	Boys	Total	Girls	Boys	Total	Girls
Tachistoscopic Test General Level of Word Recognition	.82	.75	.75	.08	.071	.098
Tachistoscopic Test Durrell Analysis of Oral Reading	.12	.42	.25	.23	.13	.21
Tachistoscopic Test Metropolitan Achievement Test Word Meaning Section	.54	.46	.41	.17	.13	.19
Tachistoscopic Test Manwiller Word Recognition Test	.84	.53	.66	.07	.12	.13

this value was checked in the table of probability with 36 degrees of freedom, it was found to be above the coefficient of .412 required for significance at the .01 level of confidence. It seemed safe to conclude that the levels of proficiency on the Tachistoscopic Test were slightly similar to corresponding levels of proficiency in recognition of words in context.

When related to sex, as was shown the boys' "r" was .54. When this value was checked in the table of probability with 16 degrees of freedom, it was slightly below the coefficient of .590 required for significance at

the .01 level of confidence. The girls' "r" was .41. With 18 degrees of freedom, it was below the coefficient of .561 required for significance at the .01 level of confidence.

Results of Measures of Relationship Between the Tachistoscopic Test and Recognition of Words in Isolation.--Data found in Table 13 indicated that the relationship between the performance on the Tachistoscopic Test and the Manwiller Word Recognition Test was substantial. When the "r" .53 was compared with the 36 degrees of freedom, this value was slighly above the coefficient of .412 required for significance at the .01 level of confidence. It was assumed, therefore, that to a substantial degree a high level of performance on the Tachistoscopic Test paralleled the similarly high level on recognition of words in isolation, and low attainment on the Tachistoscopic Test paralleled low attainment on the recognition of words in isolation.

The boys' "r" was .84. When this value was checked in a table of probability with 16 degrees of freedom, it was far above the coefficient of .590 required for significance at the .01 level of confidence. The girls' "r" was .66. When this value was checked in the table of probability with 18 degrees of freedom, it was slightly above the coefficient of .561 required for significance at the .01 level of confidence.

TABLE 14

COMPARISONS OF Z-VALUES OF CERTAIN COEFFICIENTS OF CORRELATION RESULTING FROM PERFORMANCES OF BOYS AND GIRLS ON TESTS OF PERCEPTION, WORD RECOGNITION AND ORAL READING

	Boys		Girls	σz			z_1-z_2	z_1-z_2	"t"
	"r"	"z"	"r"	"z"	Boys	Girls			
Tachistoscopic Test General Level of Word Recognition	.82	1.16	.75	.97	.26	.17	.19	.35	.54
Tachistoscopic Test General Oral Reading	.12	.12	.25	.26	.26	.17	.14	.35	.40
Tachistoscopic Test Recognition of Words in Context	.17	.17	.19	.19	.26	.17	.02	.35	.06
Tachistoscopic Test Recognition of Words in Isolation	.84	1.22	.66	.79	.26	.17	.43	.35	1.29

Tachistoscopic Test and General Levels of Word Recognition

Correlation of the Tachistoscopic Test and General Level of Word Recognition showed the boys' "r" to be .82; the girls' to be .75. In order to determine the possible difference between these results it was necessary to convert "r's" to "z" scores. The boys' "z" score was 1.16; and the girls' .97. Further manipulation of these data showed a difference between the "z" scores of .19; a standard error of the difference between the "z's" of .35; and a "t" ratio of .54. When this value was compared with the 2.73 which is required at the .01 level of confidence, with 36 degrees of freedom, it did not represent a significant difference. The results of this study indicated that there was no statistically great difference between respective relationships of rate and accuracy of perception and general word recognition when they were considered in terms of sex.

Tachistoscopic Test and General Levels of Oral Reading

Correlation of the Tachistoscopic Test and General Level of Oral Reading showed the boys' "r" to be .12; and the girls' .25. In order to determine the possible difference between these results it was necessary to transform "r's" to "z" scores. The boys' "z" score was .12; and the girls' was .26. Further manipulation of these data showed a difference between the "z" scores of .14; a standard error of "z" of .35; and a "t" ratio of .40. When the latter finding was checked at the .01 level of confidence with 36 degrees of freedom it was far less than the required 2.73 and did not represent a significant difference. The results of this study indicated that there was no significant difference between the respective relationships

of rate and accuracy of perception and general level of oral reading when they were considered in terms of sex.

Tachistoscopic Test and Recognition of Words in Context

Correlation of the Tachistoscopic Test and Recognition of Words in Context showed the boys' "r" to be .17; the girls' to be .19. In order to determine the possible difference between these results, it was necessary to transform the "r's" to "z" scores. The boys' "z" score was .17; and the girls' was .19. Further manipulation of these data showed a difference between "z" scores of .02; a standard error of "z" of .35 and a "t" ratio of .06. When this value was compared with the required 2.73 at the .01 level of confidence and 36 degrees of freedom, it did not represent a significant difference. The resulting ratio indicated that there was no statistically significant difference between the respective relationships of rate and accuracy of perception and recognition of words in context when they were considered in terms of sex.

Tachistoscopic Test and Recognition of Words in Isolation

Correlation of the Tachistoscopic Test and recognition of words in isolation showed the boys' "r" to be .84; the girls' to be .66. In order to determine the possible difference between these results, it was necessary to convert the "r's" to "z" scores. The boys' "z" score was 1.22; and the girls' was .79. Further manipulation of these data showed a difference between the "z" scores of .43; a standard error of the "z" score of .35; and a "t" ratio of 1.29. When the latter finding was checked at the .01 level of confidence with 36 degrees of freedom, it was far less than the required 2.73 and did not represent a significant difference. The results of this transformation

indicated that there was no statistically significant difference between the respective relationships of rate and accuracy of perception and recognition of words in isolation when they were considered in terms of sex.

CHAPTER III

SUMMARY, CONCLUSIONS AND IMPLICATIONS

Introductory Statement.--This chapter restates information pertinent to a summary of the first two chapters and then presents conclusions, implications and recommendations.

Statement of the Problem and Purposes of the Study.--The problem involved in this study was to determine the relationship of oral reading and word recognition abilities of first-grade pupils to their performances on tests of rate and accuracy of word perception.

The general purpose of this study was that of ascertaining first-grade pupils' relative abilities in oral reading and word recognition skills, and relating them to their performances on tests of rate and accuracy of perception.

Specifically, this study attempted to answer these questions:

1. What are the general levels of word recognition and oral reading of these first-grade pupils?
2. How do they rate in recognition of words in context?
3. How do they rate in recognition of words in isolation?
4. What are the general levels of rate and accuracy in word perception?
5. How do these levels of perception relate to:
   a. General levels of word recognition
   b. General oral reading performances
   c. Recognition of words in context
   d. Recognition of words in isolation
6. What are the differences, if any, in relationships when these performances are considered in terms of sex?

7. What conclusions and implications for improved classroom practices may be drawn from the findings?

Description of Subjects.--The subjects involved in this study were thirty-eight first-grade pupils enrolled in Florance Street Public School, Savannah, Georgia, during the school year 1954-1955. These youngsters came from homes where there were older children or parents who were interested in their progress in school. Almost the first day of school each of them had a book bag and a lunch box, or money for a hot lunch in the lunchroom.

Many persons who visited their room agreed with the theme, "School is Fun;" these children made it so. Certainly it seemed to be a group of healthy, happy children ready to begin working with the "three R's." Most of them had spent at least one and a half years in the kindergarten. One year from the time of this study three of them were doing acceptable work in grade three, while the others were progressing satisfactorily in their expected grade.

Before beginning the testing program, the California Short-Form Test of Mental Maturity was administered and it was discovered that the intelligence grade placement of the subjects ranged from 1.0 to 3.0. It was thus concluded that the pupils possessed a range of capacity favorable to initial reading instruction. The pupils' attitude toward the testing program was highly satisfactory.

Instruments.--The instruments used in gathering the data for the research were as follows:

1. The Three Dimension Tachistoscope, testing for accuracy and rapidity.

2. The Manwiller Word Recognition Test, Form B for Grades 1 and 2, by Charles E. Manwiller, Copyright 1934 by the World Book Company.

3. The Durrell Analysis of Oral Reading, The Reading Vocabulary Section, by Donald D. Durrell, Professor of Education, Boston University.

4. The Vocabulary Section of the Metropolitan Achievement Test, 1952 Revision, by Gertrude Hildreth, World Book Company, New York.

Operational Steps.--In order to relate the purposes outlined in this research, the study proceeded thusly:

1. Literature pertinent to the thesis research was reviewed and summarized.

2. The descriptive survey method of research, employing the special techniques of testing and statistical interpretation was used to gather the necessary data for the research.

3. The Manwiller Word Recognition Test was administered in order to determine their abilities in recognition of words in isolation.

4. The oral reading section of the Durrell Analysis of Reading Difficulty was employed in order to determine the oral reading difficulties of the pupils.

5. The word meaning section of the Metropolitan Achievement Test was administered in order to determine the oral reading abilities of the pupils.

6. Further investigation was made of their abilities of word recognition and accuracy of perception with the use of the Three Dimension Tachistoscope.

7. The data derived from the administration of the tests were assembled into appropriate tables and figures as determined by the purposes of the research.

8. The basic data set forth in the tables were statistically treated through the computation of such measures as mean, median, standard error of the mean, standard deviation and Pearson Product-moment Coefficient of Correlation.

9. Conclusions and recommendations were drawn.

Statistical Measures Used.--The statistical measures that were used to answer questions raised in the purpose of the study were as follows:

1. The mean and median were the measures used in order to determine the group average on each of the tests given.

2. The range and standard deviation provided measures of scatter so that it was possible to see the relative homogeneity or heterogeneity of the scores.

3. Measures of standard error were utilized to determine the significance of the various statistics, particularly the mean and coefficient of correlation.

4. In one instance T scores were computed in order to treat two different test scales of word recognition as if they were of the same in value.

5. The Pearson Product Moment Coefficient of Correlation was used to determine the relationship between word recognition and rate of perception and oral reading and rate of perception.

6. Measures of "z" scores were utilized for the purposes of comparing relationship.

7. Fisher's "t" used for the computation of differences when small samples were concerned as well as large ones.

Limitations of the Study.--The limitations of this study inhered in at least three of its aspects. First, the study was limited to thirty-eight first-grade pupils who had received initial guidance in learning to read. Secondly, pupils' performances on standardized tests and reactions to quick exposures of familiar symbols provided data for the study. Thirdly, the data were treated statistically through use of measures of variability, central tendency, and relationship.

Summary of Related Literature.--A summary of the literature which the writer considered pertinent to the subject was divided into two areas: (1) scientific and methodological explanations of oral reading, word recognition and perception, (2) specific descriptions of studies related to the present one.

Gray states that oral reading is probably the most natural beginning approach for teaching reading. It should be emphasized that the kind of oral reading that is encouraged in the early grades is not a "performance;" its chief function is to develop worthwhile skills in communicating ideas read from the printed page.[1]

The following purposes of oral reading provide insight into the comments of the process:

1. Correct pronunciation of all words.
2. Clear, correct articulation.
3. Speaking loudly enough to be heard by every one listening.
4. Using emphasis to make meaning clear.
5. Grouping words into meaningful thought groups with pauses between.
6. Reading slow enough to be understood and to avoid running words together.
7. Speaking in a natural voice that is as pleasing as the child can make it.[2]

Word recognition is the basic skill to be mastered in beginning reading; it is needed to interpret the meaning of new words. The use of context clues is believed to be one of the most important aids to word recognition. Emphasis should be placed upon the use of context clues when the child is first introduced to reading.

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[1]C. T. Gray, The Purpose and Value of Oral Reading in the Elementary School, Elementary School Journal, 29: 335-343. (January, 1929).

[2]Letitia Raubicheck, How to Teach Good Speech in the Elementary School, New York: Noble & Noble 1937 (Chapter V discusses speech in Grades I and II, Chapters VIII to X, Common voice problems and correction. Chapter XV deals with oral reading.

Accurate perception of words and phrases is an asset in reading. A deficiency in auditory sensation of perception often results in the persistence of infantile pronunciation of words.

Perceiving is fundamentally the first kind of learning. Visual perception, prominent among the perceptual tendencies of immature children, is the tendency to make reversal errors; however, they seem to decrease as children grow older.

Related studies gave evidence that the child with low mentality, but who is ready to read encounters fewer difficulties in reading when grouped homogeneously.

Pupils having physical defects progressed as well and as fast as those free from physical defects.

Disabilities encountered in reading readiness may be overcome by diagnosis and treatment of them or by adjustment to them.[1]

This review of related literature led to the following conclusions:

1. It may be substantially assumed that quick perception of words, recognition of words by some form of analysis and oral reading are intricately related.

2. It may be reasonably assumed that oral reading provides insight for correct pronunciation, clear articulation and grouping words into meaningful thought groups.

3. It can be justly assumed that contextual clues are in complete agreement with quick word recognition and should be emphasized in an initial reading program.

4. It may be assumed that oral reading and oral expressions constitute the foundation for associating comprehension with the printed symbols.

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[1]Marion R. Perkins, The Comparison of the Effectiveness of Three Methods of Teaching Word Recognition, Individual Method, Group Method and Individual Group Method in First Grade. Atlanta: University of Atlanta, Georgia, 1943.

The foregoing conclusions regarding perception, word recognition and oral reading, and the limited amount of research reported concerning them exerted tremendous influence upon the presentation and interpretation of data.

Summary of Findings.--The findings are herewith summarized in accordance with major purposes of the study.

General Levels of Performance on Tests of Word Recognition, Oral Reading and Perception

1. General levels of word recognition of the thirty-eight subjects composed of the eighteen boys and twenty girls gave a median of 13.7, a mean of 13.3, a standard error of .73, and a standard deviation of 4.44. The scores ranged from 4 to 25, with 16 cases above the mean and 17 cases below it. These findings led to the conclusion that the mean grade equivalent of the group was approximately eight months in the first grade upon which the test was standardized. Separate consideration of boys and girls showed highly similar results with no significant differences between the boys' and girls' mean scores of 13.39 and 14.0 respectively.

2. The general levels of oral reading levels of the thirty-eight subjects, the eighteen boys and the twenty girls gave a median score of 28.7, a mean of 28.2, a standard error of 0.88, and the standard deviation of 5.32. The scores ranged from 16 to 39, with 16 cases above the mean and 15 cases below it.

   These observations led to the conclusion that the mean grade equivalent of the group was at the first-grade level, and showed the scores to be more or less normally distributed and definitely homogeneous in pattern. Separate consideration of boys and girls showed similar results, with no significant difference between the mean scores of 28.4 and 28.0 for boys and girls respectively.

3. Combined Performances on the Metropolitan Achievement Test and the Manwiller Word Recognition Test. The thirty-eight subjects had a median of 53.3, a mean of 54.8, a standard error of 1.8, and a standard deviation of 10.5. The scores ranged from 22.4 to 71.8, with 9 cases above the mean and 16 cases below it. From these findings it was concluded that the grade placement was eight months in the first grade. Comparison of the sexes yielded similar results, with no difference between the means of 51.3 and 51.2 for boys and girls respectively.

4. Recognition of words in context of the thirty-eight subjects; eighteen boys and the twenty girls. For the thirty-eight subjects, there was a median score of 17.2, a mean of 17.6, a standard error of 0.59, and a standard deviation of 3.56. The scores ranged from 11 to 26, with 12 cases above the mean and 15 cases below it. These observations led to the conclusion that the mean grade equivalent of the group was approximately eight months in the first grade. General consideration of the findings showed the scores to be more or less normally distributed and rather homogeneous in design. Separation of the sexes yielded similar results with no significant difference between the means of 18.1 and 18.1 for boys and girls respectively.

5. Recognition of words in isolation. Of the thirty-eight subjects, the eighteen boys and the twenty girls, there was a median score of 14.5, a mean of 15.7, a standard error of 0.89, and a standard deviation of 5.4. The scores ranged from 6 to 25, with 13 cases above the mean and 19 cases below it. General considerations of these findings showed the scores to be more or less normally distributed, and led to the conclusion that the mean grade placement was eight months in the first grade. Comparison of performances of boys and girls showed no significant difference between their respective means of 14.8 and 15.4.

6. Performances on tests of rate and accuracy for the thirty-eight subjects. There was a median score of 42.0, a mean of 42.3, a standard error of 2.2, and a standard deviation of 13.1. The scores ranged from 20 to 72; there were 16 cases above the mean and 16 cases below it. These findings led to the conclusion that the mean grade equivalent of the group was approximately at the expected grade level. Separate consideration of boys and girls showed similar results with no significant differences between the boys' mean score of 42.8 and the girls' mean score of 42.0.

Relationships of Performance on Tachistoscopic Test to Oral Reading and Vocabulary

1. Relationship between the Tachistoscopic Test and general levels of Word Recognition for the thirty-eight subjects composed of eighteen boys and twenty girls, gave a "r" of .75 with 36 degrees of freedom; this was far above the required coefficient of .412. These findings led to the conclusion that pupils at high, average, or low levels of achievements in general word recognition performed at highly similar levels on the Tachistoscopic Test. Separate consideration of boys and girls showed similar results, with no significant difference between the boys' and girls' "r" .82 and .75 respectively.

2. Relationship between the Tachistoscopic Test and General Oral Reading of the thirty-eight subjects composed of eighteen boys and twenty girls gave a "r" of .42; with 36 degrees of freedom this was slightly above the required coefficient of .412. These findings led to the conclusion that pupils at high ot low levels of achievement in general oral reading performed at similar levels on the Tachistoscopic Test. Although the group showed a fair positive relationship, neither of the performances of boys or girls reflected this tendency. However, there was no significant difference between the boys' and girls' "r" .12 and .25 respectively.

3. Relationship between the Tachistoscopic Test and Recognition of Words in Context of thirty-eight pupils composed of eighteen boys and twenty girls gave a "r" of .46; with 36 degrees of freedom this was above the required coefficient of .412. These findings led to the conclusion that the levels of proficiency on the Tachistoscopic Test were slightly similar to the corresponding levels of proficiency in word recognition in context. Separate consideration of the boys' and girls' "r" showed no significant difference.

4. Relationship between the Tachistoscopic Test and Recognition of Words in Isolation of thirty-eight subjects composed of eighteen boys and twenty girls yielded a "r" of .53; with 36 degrees of freedom this was slightly above the required coefficient of .412. These findings led to the conclusion that to a substantial degree a high level of performance on the Tachistoscopic Test paralleled similar high levels on recognition of words in isolation, and low attainments on the Tachistoscopic Test paralleled low attainments on recognition of words in isolation. Separate consideration of boys' and girls' "r" showed highly similar results.

Comparisons of Respective Relationships in Terms of Sex

1. Correlation of the Tachistoscopic Test and general levels of word recognition showed the boys' "z" score was 1.16, the girls' .97; a difference of .19, a standard error of the difference of .35, and a "t" ratio of .54. With a required "t" ratio of 2.73 it did not represent a significant difference between the respective relationships of rate and accuracy of perception and general word recognition when they were considered in terms of sex.

2. Correlation of the Tachistoscopic Test and general levels of oral reading showed the boys' "z" score was .12, and the girls' .26; a difference of .14, a standard error of "z" .35, and a "t" ratio of .40. With a required "t" ratio of 2.73 it did not represent a significant difference between the respective relationships of rate and accuracy of perception and general level of oral reading in terms of sex.

3. The correlation of the Tachistoscopic Test and word recognition in context showed the boys' "z" score was .17, the girls' .19; a standard error of "z" .35, and a "t" ratio of .06. With the required "t" ratio of 2.73, it did not represent a statistical significant difference between the respective relationships of rate and accuracy of perception and general levels of word recognition in context in terms of sex.

4. Correlation of the Tachistoscopic Test and recognition of words in isolation showed the boys' "z" was 1.22, the girls' .79; and a difference between the "z" scores of .43 and a "t" ratio of 1.29. With a required "t" ratio of 2.73 it did not represent a significant difference. There was no statistical significant difference between the respective relationships of rate and accuracy of perception and recognition of words in isolation.

Conclusions.--The analysis and interpretation of the data of this study warranted the conclusions which follow:

1. Since the data indicated that the scores were more or less normally distributed and rather homogenous in design, it could be concluded that in word recognition, oral reading, and accuracy in word perception, the group had reached similar levels of attainment.

2. Since the results of the performances on each of the tests indicated that the pupils were eight months in the first grade, the data could justify the conclusion that the pupils were at their expected grade placement.

3. Since the data substantiated the fact that to a high degree in the total group and the separate groups of boys and girls, pupils who rated high, average, or low in one area rated highly similar in other tested areas, it was concluded that both groups presented similar patterns of development in these skills.

4. After the correlation of the pupil's performances on the Tachistoscopic Test and general levels of word recognition, the results showed that there was no significant difference between the respective relationships of rate and accuracy of perception and general word recognition. It could be concluded that when they were correlated, the scores made by boys and girls on tests of perception and vocabulary showed the same general relationship.

5. The results of the correlation of the Tachistoscopic Test and the Durrell Analysis of Reading Difficulty showed a slight numerical difference between the respective relationships of rate of accuracy of perception and oral reading. However, further study of the data did not show a significant difference. It could be concluded that there was not a significant differ-

ence in relationships of rate and accuracy of perception to oral reading in terms of sex.

6. The results of the correlation of the pupils' performances on the Tachistoscopic Test and the Metropolitan Test showed that the levels of proficiency on the Tachistoscopic Test were slightly similar to the corresponding levels of proficiency in recognition of words in context. Separate study of the groups showed similar results. It could be concluded that there was not a significant difference in terms of sex.

7. The results of the correlation of the pupils' performances on the Tachistoscopic Test and Manwiller Word Recognition Test showed highly simila r results in rate and accuracy of perception and recognition of words in isolation respectively. Separate study of the groups showed no significant difference. It was justifiable to conclude that there was not a significant difference in rate of accuracy of perception and word recognition in isolation in terms of sex.

Implications.--The following implications were drawn from the foregoing findings and conclusions:

1. The general levels of oral reading, vocabulary and rate of perception implied that the average pupil in the first-grade class could deal satisfactorily with materials designed for this level.

2. The pupils had maintained a reasonable balance between word recognition and word meaning; hence, it could be assumed that they were ready for systematic guidance in methods of word attack, such as contextual, structural and phonetic techniques.

3. Their general accuracy in quick perception of words and their progress in oral reading could serve as the basis for increased stress on silent reading.

4. The striking similarity of performances of boys and girls did not agree with frequent reports that boys suffer greater difficulty in the mastery of beginning reading skills.

5. The close relationships in patterns of development in vocabulary, oral reading and rate of perception might be considered as indicative of considerable integration between and among these skills.

Recommendations.--The following recommendations were based on findings, conclusions and implications:

1. That the pupils of this study be challenged to maintain their present levels of vocabulary, oral reading and rate of perception through a generous supply of appropriate materials and varied methods such as basal, unit experience and non-oral.

2. That their readiness for systematic word attack be strongly influenced by guidance in word meaning so that the two facets of word recognition may supplement each other.

3. That the pupils' experiences should favor increased practice in silent reading though at no time should they neglect the practical and diagnostic uses of oral reading.

4. That close attention be given to shifting interests and attitudes of boys and girls so that each group will maintain their seemingly satisfactory levels of oral reading, vocabulary and perceptual development.

5. That the selection of books and other practice materials should be influenced by the close relationship found between skill in perception and skill in oral reading and vocabulary.

Recommendations for Further Study.--The present study suggested several areas for investigation. The following ones seemed particularly pertinent to further insight into beginning reading experiences:

1. A study of the relationship of silent reading to rate and accuracy of perception.

2. Investigation into the relative effectiveness of varied audio-visual materials in establishing reading skills.

3. A comparison of perceptual skills of pupils taught by oral and non-oral methods of teaching reading.

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WORD LIST FROM THE BASIC READERS USED ON THE SLIDES FOR THE TACHISTOSCOPIC TEST

Group A	Group B	Group C
1. go	1. down	1. red
2. mother	2. up	2. make
3. baby	3. work	3. two
4. see	4. the	4. my
5. Dick	5. ball	5. house
6. Jane	6. find	6. family
7. oh	7. big	7. fun
8. and	8. little	8. this
9. Tim	9. help	9. who
10. something	10. to	10. good
11. look	11. me	11. apple
12. wants	12. car	12. chickens
13. Puff	13. in	13. barn
14. Spot	14. we	14. pretty
15. said	15. away	15. white
16. funny	16. you	16. doll
17. come	17. here	17. birthday
18. jump	18. for	18. school
19. father	19. cookie	19. rabbit
20. play	20. three	20. egg
21. is	21. one	21. toys
22. can	22. where	22. girl
23. run	23. yellow	23. boy

DISTRIBUTION AGES IN MONTHS OF 38 PUPILS USED IN THE STUDY

Age	Frequency	Per Cent
90	1	2.6
89		
88		
87	2	5.3
86	2	5.3
85		
84		
83	2	5.3
82	3	7.9
81	5	13.2
80	8	21.0
79	14	36.8
78	1	2.6
Totals	38	100.0

Mean 80.5

2.75

S. E. 0.45

DURRELL
ANALYSIS OF READING DIFFICULTY

By DONALD D. DURRELL
Professor of Education and Director of the Educational Clinic
Boston University

INDIVIDUAL RECORD BLANK

For Grades 1 to 6

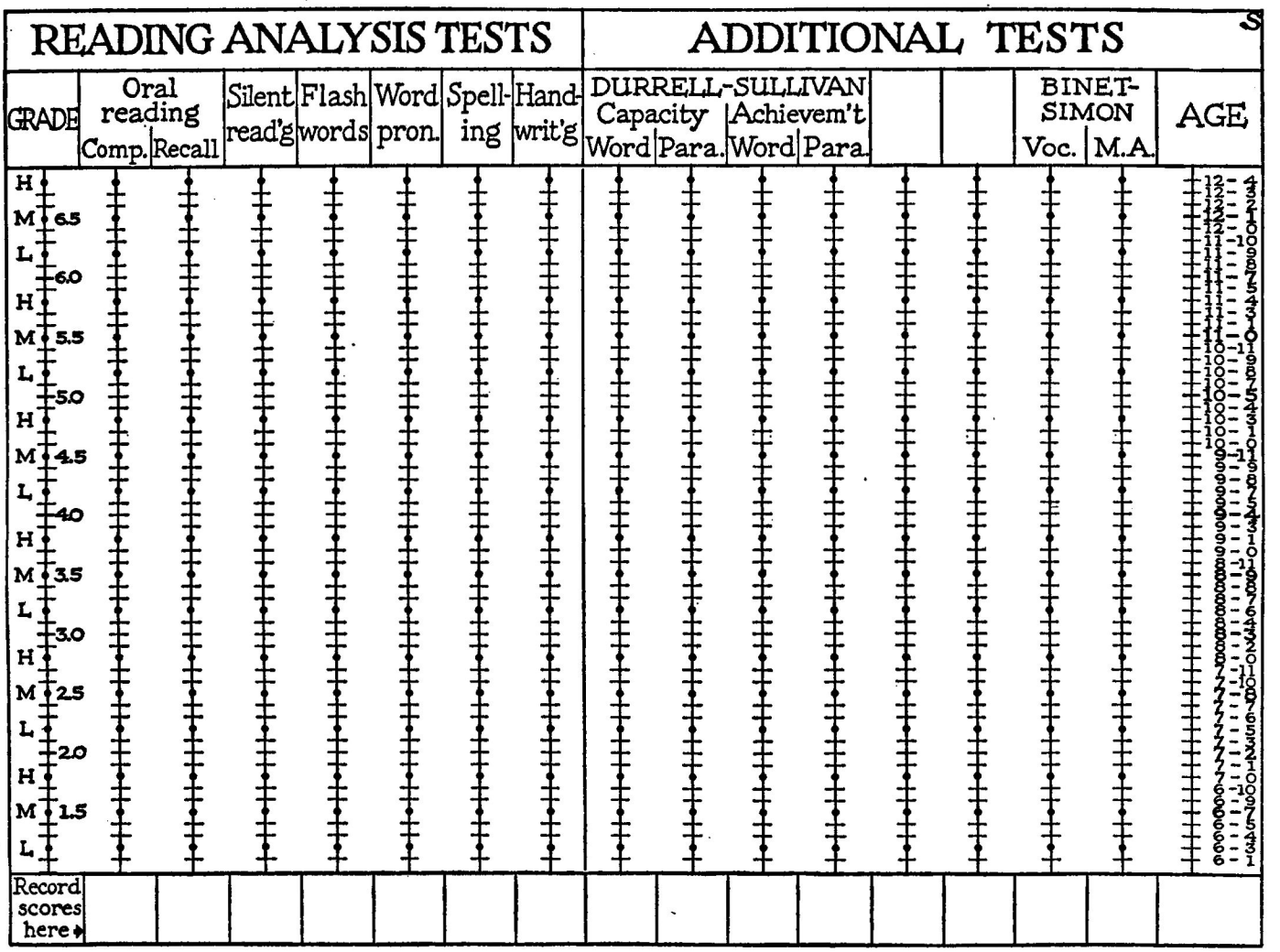
Name ..... School .....

Date ..... Examiner .....

Date of birth ..... Age ..... Grade .....

Report to ..... Address .....

PROFILE CHART



Published by World Book Company, Yonkers-on-Hudson, New York, and Chicago, Illinois

CHECK LIST OF DIFFICULTIES

Background Skills

____ Hearing vocabulary poor
____ Hearing comprehension poor
from Durrell-Sullivan Reading Capacity Test
____ Faulty voice or speech habits
from observation of conversation

Word Mastery Skills

Word recognition..... *Page 10*
____ Low sight vocabulary
____ Will not try difficult words
____ Can spell but not pronounce
____ Ignores word endings
____ Guesses at word from general form

Word analysis..... *Page 10*
____ Word-analysis ability poor
____ Will not try difficult words
____ Has no method of word analysis
____ Sounds aloud by: single letters — blends — syllables
____ Unable to combine sounds into words
____ Looks away from word after sounding
____ Sounding slow or inaccurate
____ Spells words; successful — inadequate
____ Silent word study; successful — inadequate
____ Enunciates badly when prompted
____ Systematic errors (See tabulation)
____ Names of letters not known
____ Sounds of letters not known
____ Blends not known

Word skills in oral reading..... *Page 5*
____ Low sight vocabulary
____ Word-analysis ability inadequate
____ Errors on easier words
____ Guesses at unknown words from context
____ Ignores word errors and reads on
____ Poor enunciation of prompted words

Word skills in silent reading. *From informal tests*
____ Ignores difficult words
____ Derives no word meanings from context

Oral Reading

Phrase reading..... *Page 5*
____ Word-by-word reading
____ Inadequate phrasing
____ Incorrect phrasing
____ Eye-voice span too short

Oral Reading (*Cont'd*)

Voice, enunciation, expression..... *Page 5*
____ Strained, high-pitched voice
____ Monotonous tone
____ Volume too loud
____ Volume too soft
____ Poor enunciation in all reading
____ Poor enunciation of difficult words
____ Ignores punctuation
____ Habitual repetition of words
____ Habitual addition of words
____ Omits words
____ Marked insecurity evident

Comprehension..... *Page 5 or 7*
____ In easy material
____ In difficult material

General Reading Habits..... *Page 6*

____ Head movements; marked — slight
____ Loses place easily
____ Uses finger or pointer
____ Holds book too close or incorrectly
____ Frowns and shows signs of tenseness
____ Poor posture
____ Effort and attention low
____ Easily distracted
____ Lacks aggressiveness in attack
____ Shows aversion to reading

Silent Reading..... *Page 8*

Mechanics
____ Low rate of silent reading
____ High rate at the expense of mastery
____ Lip movements; constant — occasional
____ Whispering; constant — occasional
____ Lacks persistence in hard material
____ Marked insecurity evident
____ Poor attention necessitates rereading

Comprehension
____ In easy material
____ In hard material

Eye movements
____ Too many per line
____ Irregular pauses
____ Regressive movements

Comparison with oral reading
Speed: ____ Higher ____ Same ____ Lower
Recall: ____ Better ____ Same ____ Poorer
Security: ____ Better ____ Same ____ Poorer

Recall

Oral recall..... *Pages 6 and 8**
____ Unaided recall scanty
____ Poorly organized recall
____ Inaccurate memories and guesses
____ Response labored and slow
____ Avoids use of new words in recall
____ Recalls details badly on questions
____ Very scanty recall on hard material

Written recall..... *Page 12*
____ Unaided recall scanty
____ Poorly organized recall
____ Inaccurate memories and guesses
____ Avoids use of new words in recall
____ Laborious writing
____ Spelling difficulty impedes recall

Study Skills..... *From informal tests*

Thorough reading skills
____ Organization and evaluation
____ Reading for details
____ Outlining and summarizing

Speeded reading skills
____ Locating information
____ Scanning

Associational reading

Use of dictionary and reference materials

Spelling..... *Page 12*

____ Omits sounds or syllables
____ Adds sounds or syllables
____ Incorrect phonetic spelling
____ Correct phonetic spelling but incorrect on non-phonetic word elements
____ Slow handwriting

Writing..... *Page 12*

____ Speed too low
____ Poor letter formation
____ Poor position of hand, pencil, paper, etc.
____ Irregular height
____ Irregular spacing
____ Irregular slant

* Double check this list, using a check (✓) for difficulties in Oral Recall from Oral Reading (page 6) and a cross (×) for difficulties in Oral Recall from Silent Reading (page 8).

SCHOOL RECORD

Age at school entrance..... Onset of difficulty.....

First-grade absences..... Schools attended.....

Recent absences..... Reading method used.....

School report (or classroom visit): Poor discipline.....

Discouraged.....

MEDICAL RECORD

Latest examination of eyes.....by.....

Clinic examination suggests:

Nearsighted..... Farsighted.....

Astigmatism..... Coördination difficulty .....

Hearing..... Auditory discrimination.....

Pertinent medical history: Source.....

PSYCHOLOGICAL FACTORS — HOME HISTORY: Source.....

Other siblings — where in school?
Handedness change
Emotional reactions
Special interests
Tutoring possibilities
Previous tutoring

REMEDIAL PLANS (Individual tutoring — small group work — remedial class)

1. Level of reading materials
2. Motivation type — interests
3. Word work
   - Word analysis — level, type
   - Immediate recognition
   - Phrase work
4. Oral reading plans
   - Mechanics
   - Comprehension
5. Silent reading plans
   - Mechanics
   - Comprehension
6. Study skills
   - Thoroughness
   - Flexibility
   - Association

ORAL READING

Instructions. Make a record of time, errors, phrasing, and comprehension according to the directions in the manual.

1. *Time*..... *Number of Reading Errors*.....

Muff is a little yellow kitten.
She drinks milk.
She sleeps on a chair.
She does not like to get wet.

___ 1. What color was the kitten?
___ 2. What does she drink?
___ 3. Where does she sleep?
___ 4. Why doesn't Muff like to go out on rainy days?

2. *Time*..... *Number of Reading Errors*.....

A little black dog ran away from home. He played with two big dogs. They ran away from him. It began to rain. He went under a tree. He wanted to go home, but he did not know the way. He saw a boy he knew. The boy took him home.

___ 1. Who ran away from home?
___ 2. How many other dogs did he play with?
___ 3. Why did the dog go under the tree?
___ 4. What did the dog want then?
___ 5. Whom did he see?
___ 6. How did he get home?

3. *Time*..... *Number of Reading Errors*.....

Six boys put up a tent by the side of the river. They took things to eat with them. When the sun went down, they went into the tent to sleep. In the night, a cow came and began to eat grass around the tent. The boys were afraid. They thought it was a bear.

___ 1. How many boys went camping?
___ 2. Where did they put up their tent?
___ 3. What did they take with them besides their tent?
___ 4. What did the boys do when the sun went down?
___ 5. What came around their tent in the night?
___ 6. What was the cow doing?
___ 7. What did the boys think the cow was?

4. *Time*..... *Number of Reading Errors*.....

Henry goes to a large lake in summer. Last summer, a motorboat sank near his house. The boat had ten men on it. The man who was running the boat brought it very close to the shore when the water was low. He hit a big rock under water. It made a hole in the bottom of the boat. The water came in very fast. All of the men swam to shore.

___ 1. Where does Henry go in summer?
___ 2. What happened near his house?
___ 3. What kind of boat was it?
___ 4. What did the boat hit?
___ 5. How fast did the water come in?
___ 6. How many men were on the boat?
___ 7. What happened to the men on the boat?

5. *Time*..... *Number of Reading Errors*.....

In 1807, Robert Fulton took the first long trip in a steamboat. He went one hundred and fifty miles up the Hudson River. The boat went five miles an hour. This was faster than a steamboat had ever gone before. Crowds gathered on both banks of the river to see this new kind of boat go by. The fishermen did not like the boat. They were afraid that its noise and splashing would drive away all the fish.

___ 1. What did Robert Fulton do in this story?
___ 2. What kind of boat was it?
___ 3. What river was the trip made on?
___ 4. How far did the boat go?
___ 5. How fast did it go?
___ 6. Who did not like the boat?
___ 7. What were the fishermen afraid would happen?

TIME AND ERROR RECORD

Paragraph No.	No. of Errors		Reading Time[1] in Grade																	
			1			2			3			4			5			6		
	Reading	Compre.	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
1			50	38	30	27	20	15												
2			90	75	60	55	41	30												
3						65	50	40	35	25	20									
4									70	40	32	30	27	24						
5									70	50	42	40	35	30	27	25	22			
6												90	75	65	60	55	52	45	40	32
7															80	72	65	60	55	42
8																		90	65	50

[1] In seconds.

6. *Time*..... *Number of Reading Errors*.....

The richest diamond field in the world is in South Africa. Deep pits yield a hard substance called "blue ground" which contains the diamonds. The blue ground is spread over the drying fields for a year. The weather gradually crumbles it. Then it is taken up and run through washing machines which sort out the stones and the diamonds. The value of the diamonds is determined by color, size, and purity. Blue, yellow, orange, brown, and green diamonds have been discovered. The most valuable ones are pure white. The largest diamond ever found weighed almost two pounds.

____ 1. In what country is the richest diamond field of the world?
____ 2. What is the substance containing the diamonds called?
____ 3. Why is the blue ground spread over the drying fields?
____ 4. What do the washing machines do?
____ 5. What are some of the colors of diamonds?
____ 6. Which diamonds are the most valuable?
____ 7. How heavy was the largest diamond ever found?

7. *Time*..... *Number of Reading Errors*.....

Golf originated in Holland as a game played on ice. The game in its present form first appeared in Scotland. It became unusually popular and kings found it so enjoyable that it was known as "the royal game." James IV, however, thought that people neglected their work to indulge in this fascinating sport so that it was forbidden in 1457. James relented when he found how attractive the game was, and it immediately regained its former popularity. Golf spread gradually to other countries, being introduced in America in 1890. It has grown in favor until there is hardly a town that does not boast of a private or public course.

____ 1. Where did golf originate?
____ 2. How was it first played?
____ 3. Where did it first appear in its present form?
____ 4. Why was golf forbidden by James IV?
____ 5. Why did he change his mind?
____ 6. When was golf first introduced in America?
____ 7. What evidence have we of its popularity?

8. *Time*..... *Number of Reading Errors*.....

Between 1865 and 1900, the northern part of the United States enjoyed great prosperity. Many new industries developed, among them the making of thread and ready-made clothes. The invention of machinery revolutionized methods of manufacture. For example, the introduction of the McKay sewing machine permitted the manufacture of shoes in big factories. Radical changes in steel-making allowed enormous expansion of the iron and steel industries. The Bessemer process of smelting was introduced into the country in 1864 and the open-hearth process in 1867. As a result, more machinery could be built, and factories became more productive.

____ 1. What great development is described here?
____ 2. When did this industrial growth take place?
____ 3. What were some of the industries that arose?
____ 4. In which part of the United States did this take place?
____ 5. What invention increased the production of shoes?
____ 6. What processes of steel making were used?
____ 7. What effect did increased steel production have on industry?

CHECK LIST OF DIFFICULTIES

PHRASE READING
- ____ Word-by-word reading
- ____ Inadequate phrasing
- ____ Incorrect phrasing
- ____ Eye-voice span too short

VOICE, ENUNCIATION, EXPRESSION
- ____ Strained, high-pitched voice
- ____ Monotonous tone
- ____ Volume too loud
- ____ Volume too soft
- ____ Poor enunciation in all reading
- ____ Poor enunciation of difficult words
- ____ Ignores punctuation
- ____ Habitual repetition of words
- ____ Habitual addition of words
- ____ Omits words
- ____ Marked insecurity evident

WORD SKILLS IN ORAL READING
- ____ Low sight vocabulary
- ____ Word-analysis ability inadequate
- ____ Errors on easier words
- ____ Guesses at unknown words from context
- ____ Ignores word errors and reads on
- ____ Poor enunciation of prompted words

COMPREHENSION
---Good
---Fair
---Poor

MEDIAN READING GRADE

ORAL READING — UNAIDED ORAL RECALL

Instructions. Record time, errors, number of unaided memories, inaccurate memories, and prompted memories, according to directions in the Manual.

1. *Time*.....*No. of Reading Errors*.....

Bob		
was going		
to school		
He saw a red light		
and he stopped		
The green light came		
and Bob ran fast		
Total		

2. *Time*.....*No. of Reading Errors*.....

A boy had		
a big gray cat		
He was going to give her		
some milk		
She did not come		
when he called		
He saw her		
up in a tree		
looking down		
at a big dog		
The boy sent the dog away		
Then the cat jumped down		
from the tree		
and came for her milk		
Total		

3. *Time*.....*No. of Reading Errors*.....

Dick		
jumped out of bed		
and ran downstairs		
It was his birthday		
He found a big basket		
on his chair		
at the table		
Something was moving		
in the basket		
Dick took off the cover		
Out jumped		
a little brown dog		
The dog started to bark		
and wag his tail		
He was glad to get out		
Total		

4. *Time*.....*No. of Reading Errors*.....

A boy		
was hurt		
on our street		
yesterday		
He had been playing ball		
and was riding		
his bicycle		
away from		
the ball field		
when a car		
came down the road		
He did not see		
the car coming		
because he was looking back		
at the boys		
who were still playing ball		
The car was going slowly		
It hit the boy,		
but did not run over him		
His arm		
was hurt		
and his bicycle		
was bent		
Total		

5. *Time*.....*No. of Reading Errors*.....

Peter Cooper		
built one of the first		
railroad engines		
in the United States		
It was used to pull cars		
from a city to a town		
thirteen miles away		
No one thought that		
the engine could do this		
In August		
in the year 1830,		
it was hooked to a car		
packed full of people		
It went at a speed		
of eighteen miles an hour		
and made the trip		
in forty-eight minutes		
People were surprised		
that anyone could breathe		
while going so fast		
Total		

6. *Time*..... *No. of Reading Errors*.....

Large kites have been used		
for a great many things		
In war they have been used		
to carry signal lanterns		
and to carry automatic cameras		
over enemy territory		
One general		
used kites to pull ropes		
across a swift river		
so that he could start to build		
a swinging bridge		
Some people in China		
make "singing kites"		
which are supposed		
to frighten away		
evil spirits		
The weather bureau has used kites		
to study temperature		
and the speed of the wind		
at great heights		
A string of kites once went up		
over four miles in the air		
Some kites are big enough		
to lift a man		
Total		

CHECK LIST OF DIFFICULTIES

RECALL

- ____ Unaided recall scanty
- ____ Poorly organized recall
- ____ Inaccurate memories and guesses
- ____ Response labored and slow
- ____ Avoids use of new words in recall
- ____ Recalls details badly on questions
- ____ Very scanty recall on hard material

GENERAL READING HABITS

- ____ Head movements; marked — slight
- ____ Loses place easily
- ____ Uses finger or pointer
- ____ Holds book too close or incorrectly
- ____ Frowns and shows signs of tenseness
- ____ Poor posture
- ____ Effort and attention low
- ____ Easily distracted
- ____ Lacks aggressiveness in attack
- ____ Shows aversion to reading

7. *Time*..... *No. of Reading Errors*.....		
Baseball is called.....	....	....
the national sport.....	....	....
It developed from games...	....	....
known as "rounders".....	....	....
and "town ball.".....	....	....
It was played in colleges....	....	....
as early as 1825.....	....	....
and its popularity.....	....	....
has constantly increased....	....	....
It is easily understood.....	....	....
and demands simple equipment.....	....	....
Curiously enough,.....	....	....
war has been responsible...	....	....
for the growth of the pastime.	....	....
Men learned it in camps....	....	....
during the Civil War.....	....	....
and organized teams.....	....	....
on returning home.....	....	....
The World War.....	....	....
extended it further.....	....	....
Wherever American soldiers	....	....
have been stationed	....	....
they have created.....	....	....
an interest in baseball.....	....	....
which remained.....	....	....
after the men departed.....	....	....
Both amateur and.....	....	....
professional players.....	....	....
welcome the baseball season.	....	....
Total.....	....	....

8. *Time*..... *No. of Reading Errors*.....		
Failure to plan.....	....	....
for suitable defense.....	....	....
under irregular conditions..	....	....
of warfare.....	....	....
accounts for defeat.....	....	....
in the first war.....	....	....
waged by the United States.	....	....
An army.....	....	....
of two thousand men.....	....	....
under General Arthur St. Clair.....	....	....
marched northward.....	....	....
from Cincinnati.....	....	....
to punish Indians who.....	....	....
had broken treaty provisions.	....	....
They neglected to guard against.....	....	....
unexpected assault.....	....	....
and found themselves defenseless.....	....	....
when hostile Indians.....	....	....
suddenly attacked them....	....	....
in the forest.....	....	....
Firearms gave little protection.....	....	....
against an enemy in ambush.	....	....
After a futile attempt at defense,.....	....	....
St. Clair ordered his men...	....	....
to retreat.....	....	....

8. *Continued*		
Only fifty.....	....	....
escaped uninjured.....	....	....
President Washington.....	....	....
felt very bitterly.....	....	....
about St. Clair's carelessness	....	....
in the country's first.....	....	....
military campaign.....	....	....
Total.....	....	....

COMPREHENSION
---Good
---Fair
---Poor

MEDIAN READING GRADE

TIME AND ERROR RECORD

PARAGRAPH No.	No. of Reading Errors	Memories in Grade						Reading Time[1] in Grade															
								1			2			3			4			5			6		
		1	2	3	4	5	6	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
1		5	6					50	36	30	27	24	18												
2		8	10					80	70	60	55	36	30												
3			10	12							65	50	38	31	25	20									
4				14	15	17								50	40	32	30	27	22						
5				12	14	18								55	45	35	30	27	22						
6					12	14	16										80	65	60	55	50	47	43	40	35
7						8	13													80	70	67	60	52	40
8							10																80	60	45
Summary																									

[1] In seconds.

SILENT READING — UNAIDED ORAL RECALL

Instructions. Record time, number of unaided memories, inaccurate memories, and prompted memories according to directions in the Manual.

1. *Time*..... *No. of Memories*.....

Peter is		
a big white rabbit		
He has long ears		
He has a little tail		
He can jump and hop		
Total		

2. *Time*..... *No. of Memories*.....

A hen had		
six little yellow chickens		
One morning		
she took them for a walk		
They looked for		
something to eat		
They found some seeds and sand		
A dog came		
to play with them		
The hen		
did not like the dog		
She flew at the dog		
and made him run away		
Total		

3. *Time*..... *No. of Memories*.....

Three boys		
built a house		
in the woods		
They put a table		
and two old chairs in it		
There was a basket		
full of apples		
under the table		
One afternoon		
they went away		
and left the door open		
When they came back,		
they found two little pigs		
eating the apples		
Total		

4. *Time*..... *No. of Memories*.....

A little girl		
got off the train		
all alone		
There was nobody		
at the station		
to meet her		
She asked the man		
inside the station		
where her mother was		
He said that her mother		
could not get the car started		
A man was trying to fix it		
The little girl sat down		
to wait		
A few minutes later		
a big car		
came around the corner		
with her mother in it		
The little girl got in		
and they drove home		
Total		

5. *Time*..... *No. of Memories*.....

About one hundred and fifty		
years ago,		
in France,		
the first man		
went up in a balloon		
His balloon was made of paper		
covered with strips of cloth		
to make it strong		
A long rope kept it		
from going too high		
Later this man took a friend		
up in the balloon with him		
On this trip they rose		
over five hundred feet		
The trip lasted		
thirty minutes		
They came down		
several miles		
from where they started		
Total		

CHECK LIST OF DIFFICULTIES

MECHANICS OF SILENT READING

- ____ Low rate of silent reading
- ____ High rate at the expense of mastery
- ____ Lip movements; constant — occasional
- ____ Whispering; constant — occasional
- ____ Lacks persistence in hard material
- ____ Marked insecurity evident
- ____ Poor attention necessitates rereading

RECALL

- ____ Unaided recall scanty
- ____ Poorly organized recall
- ____ Inaccurate memories and guesses
- ____ Response labored and slow
- ____ Avoids use of new words in recall
- ____ Recalls details badly in questions
- ____ Very scanty recall on hard material

EYE MOVEMENTS

Range of eye movements per line ____ to ____

- ____ Irregular pauses
- ____ Regressive movements

COMPARISON WITH ORAL READING (*Underline*)

Speed; higher — same — lower
Recall; better — same — poorer
Security; better — same — poorer

COMPREHENSION
___Good
___Fair
___Poor

MEDIAN READING GRADE
---

6. *Time*.....	*No. of Memories*.....	
Early settlers.....	....	....
in America.....	....	....
found that Indians.....	....	....
would sell skins and land...	....	....
for glass beads.....	....	....
Many men earned their living.....	....	....
by making glass beads.....	....	....
and bottles.....	....	....
In 1827.....	....	....
a man invented a way.....	....	....
to press molten glass.....	....	....
into iron molds.....	....	....
The most famous glass works	....	....
was in the town of Sandwich in Massachusetts...	....	....
The Sandwich glass had....	....	....
a bright silvery appearance.	....	....
and it could be molded into	....	....
very elaborate and attractive patterns.....	....	....
Beautiful lamps and candlesticks.....	....	....
as well as all sorts of dishes	....	....
were made from this glass...	....	....
In many New England homes	....	....
pieces of Sandwich glass....	....	....
are still found on display....	....	....
Total.....	....	....

7. *Time*.....	*No. of Memories*.....	
Basketball.....	....	....
is one of the more recent games.....	....	....
It was devised.....	....	....
by a college instructor.....	....	....
who desired a game to interpose.....	....	....
between the football.....	....	....
and baseball seasons.....	....	....
The game demands.....	....	....
precision of movement,.....	....	....
concentration,.....	....	....
and great endurance.....	....	....
It is more popular.....	....	....
in those localities where....	....	....
it does not compete with hockey.....	....	....
Opinion differs as to whether	....	....
it is a satisfactory game....	....	....
for girls.....	....	....
It has been modified.....	....	....
to make it less strenuous...	....	....
for them.....	....	....
by restricting the playing area.....	....	....
of each player.....	....	....
Some of the large Western..	....	....
universities.....	....	....
have audiences.....	....	....
of over twenty thousand....	....	....
at their conference games...	....	....
Total.....	....	....

8. *Time*.....	*No. of Memories*.....	
Railroad communication....	....	....
developed rapidly.....	....	....
just after the Civil War.....	....	....
Between 1865 and 1873,....	....	....
thirty-five thousand.....	....	....
miles of track were laid.....	....	....
This doubled the distance..	....	....
people could travel.....	....	....
by railroad.....	....	....
Some of the new roads.....	....	....
connected important cities,	....	....
and some extended westward	....	....
beyond populated regions...	....	....
Congress.....	....	....
favored this sudden.....	....	....
development.....	....	....
by granting land to companies.....	....	....
interested in furthering.....	....	....
the expansion.....	....	....
Grants included territory...	....	....
lying within twenty miles...	....	....
of the proposed roadbed....	....	....
Alternate sections.....	....	....
were allotted to the railroad;	....	....
those in between were.....	....	....
reserved for homesteaders...	....	....
The sale of sections of land.	....	....
owned by the railroad.....	....	....
was made easier.....	....	....
through this checkerboard..	....	....
arrangement.....	....	....
Total.....	....	....

TIME AND MEMORY RECORD

No. of Paragraph	Memories in Grade						Reading Time[1] in Grade															
							1			2			3			4			5			6		
	1	2	3	4	5	6	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
1	4	5					45	35	27	24	18	13												
2	7	10					81	60	53	47	37	28												
3		7	11							62	50	35	30	23	16									
4			12	15									45	35	30	26	23	18						
5			10	12	15								62	40	36	34	30	28	26	23	18			
6				10	13	16										70	55	47	43	38	30	27	24	18
7					9	14													60	46	40	37	33	24
8						12																60	45	35
Summary																								

[1] In seconds.

FLASHED WORD RECOGNITION AND WORD ANALYSIS TEST — First Grade

LIST A		LIST B		LIST C	
Flash Recognition	Analysis	Flash Recognition	Analysis	Flash Recognition	Analysis
___ 1. to	___ 1. to	___ 1. door	___ 1. door	___ 1. orange	___ 1. orange
___ 2. the	___ 2. the	___ 2. pig	___ 2. pig	___ 2. lost	___ 2. lost
___ 3. in	___ 3. in	___ 3. good	___ 3. good	___ 3. cut	___ 3. cut
___ 4. little	___ 4. little	___ 4. this	___ 4. this	___ 4. sister	___ 4. sister
___ 5. tree	___ 5. tree	___ 5. morning	___ 5. morning	___ 5. rose	___ 5. rose
___ 6. girl	___ 6. girl	___ 6. bed	___ 6. bed	___ 6. blow	___ 6. blow
___ 7. dog	___ 7. dog	___ 7. like	___ 7. like	___ 7. tall	___ 7. tall
___ 8. run	___ 8. run	___ 8. eat	___ 8. eat	___ 8. hole	___ 8. hole
___ 9. it	___ 9. it	___ 9. around	___ 9. around	___ 9. love	___ 9. love
___ 10. come	___ 10. come	___ 10. under	___ 10. under	___ 10. pen	___ 10. pen
___ 11. me	___ 11. me	___ 11. rain	___ 11. rain	___ 11. frog	___ 11. frog
___ 12. yellow	___ 12. yellow	___ 12. barn	___ 12. barn	___ 12. picture	___ 12. picture
___ 13. mother	___ 13. mother	___ 13. live	___ 13. live	___ 13. joy	___ 13. joy
___ 14. you	___ 14. you	___ 14. cry	___ 14. cry	___ 14. himself	___ 14. himself
___ 15. look	___ 15. look	___ 15. sleep	___ 15. sleep	___ 15. sand	___ 15. sand
___ 16. are	___ 16. are	___ 16. call	___ 16. call	___ 16. please	___ 16. please
___ 17. milk	___ 17. milk	___ 17. chicken	___ 17. chicken	___ 17. cover	___ 17. cover
___ 18. children	___ 18. children	___ 18. time	___ 18. time	___ 18. animal	___ 18. animal
___ 19. away	___ 19. away	___ 19. peep	___ 19. peep	___ 19. place	___ 19. place
___ 20. she	___ 20. she	___ 20. fish	___ 20. fish	___ 20. dark	___ 20. dark
___ 21. one	___ 21. one	___ 21. asleep	___ 21. asleep	___ 21. people	___ 21. people
___ 22. all	___ 22. all	___ 22. other	___ 22. other	___ 22. chimney	___ 22. chimney
___ 23. day	___ 23. day	___ 23. chair	___ 23. chair	___ 23. talk	___ 23. talk
___ 24. father	___ 24. father	___ 24. seen	___ 24. seen	___ 24. bark	___ 24. bark
___ 25. ball	___ 25. ball	___ 25. name	___ 25. name	___ 25. river	___ 25. river
___ 26. big	___ 26. big	___ 26. breakfast	___ 26. breakfast	___ 26. afraid	___ 26. afraid

Flash Recognition
Total Correct ..... *Grade*.....

Word Analysis
Total Correct ..... *Grade* .....

DETAILED ANALYSIS OF FAULTY PRONUNCIATION

(From word pronunciation test)

	Total	Examples
Vowel errors		
Phonetic.....	.....	.....
Non-phonetic.....	.....	.....
Consonant errors		
Phonetic.....	.....	.....
Non-phonetic.....	.....	.....
Reversals		
b–d–p–q.....	.....	.....
In sequence.....	.....	.....
Addition of sounds		
Beginning.....	.....	.....
Middle of word.....	.....	.....
End of word.....	.....	.....
Omission of sounds		
Beginning.....	.....	.....
Middle of word.....	.....	.....
End of word.....	.....	.....
Substitution of whole word		
Similar form.....	.....	.....
Similar idea	.....	.....

CHECK LIST OF DIFFICULTIES IN WORD ANALYSIS AND WORD RECOGNITION

Word Recognition Skills

___ Low sight vocabulary
___ Will not try difficult words
___ Can spell but not pronounce
___ Ignores word endings
___ Guesses at word from general form

Word Analysis

___ Word-analysis ability poor
___ Will not try difficult words
___ Has no method of word analysis
___ Sounds aloud by: single letters — blends — syllables
___ Unable to combine sounds into words
___ Looks away from word after sounding
___ Sounding slow or inaccurate
___ Spells words: successful — inadequate
___ Silent word study: successful — inadequate
___ Enunciates badly when prompted
___ Systematic errors (See tabulation)
___ Names of letters not known
___ Sounds of letters not known
___ Blends not known

FLASHED WORD RECOGNITION AND WORD ANALYSIS TEST

Instructions. Record phonetically all incorrect responses according to directions in the Manual.

LIST 1

Flash Recognition	Analysis
1. blue	1. blue
2. right	2. right
3. drink	3. drink
4. fly	4. fly
5. ground	5. ground
6. wood	6. wood
7. birthday	7. birthday
8. road	8. road
9. fair	9. fair
10. strong	10. strong
11. smoke	11. smoke
12. elephant	12. elephant
13. different	13. different
14. horse	14. horse
15. stamp	15. stamp
16. which	16. which
17. handle	17. handle
18. slice	18. slice
19. quickly	19. quickly
20. believe	20. believe
21. bridge	21. bridge
22. farmer	22. farmer
23. turkey	23. turkey
24. inch	24. inch
25. know	25. know

LIST 2

1. battle	1. battle
2. witch	2. witch
3. shoes	3. shoes
4. sailor	4. sailor
5. skate	5. skate
6. cleaned	6. cleaned
7. crawl	7. crawl
8. polish	8. polish
9. quarter	9. quarter
10. speed	10. speed
11. either	11. either
12. tongue	12. tongue
13. understand	13. understand
14. single	14. single
15. workman	15. workman
16. saucer	16. saucer
17. guard	17. guard
18. twilight	18. twilight
19. chapter	19. chapter
20. drawn	20. drawn
21. crank	21. crank
22. midnight	22. midnight
23. forgotten	23. forgotten
24. review	24. review
25. noise	25. noise

Flash Recognition

Total Correct..... *Grade*.....

LIST 3

Flash Recognition	Analysis
1. imagine	1. imagine
2. flown	2. flown
3. notebook	3. notebook
4. broadcast	4. broadcast
5. difference	5. difference
6. canary	6. canary
7. horseshoe	7. horseshoe
8. invent	8. invent
9. janitor	9. janitor
10. disturb	10. disturb
11. blunt	11. blunt
12. knocks	12. knocks
13. pretend	13. pretend
14. photograph	14. photograph
15. carpenter	15. carpenter
16. ceiling	16. ceiling
17. provide	17. provide
18. battery	18. battery
19. brittle	19. brittle
20. unloading	20. unloading
21. drawbridge	21. drawbridge
22. troublesome	22. troublesome
23. wheelbarrow	23. wheelbarrow
24. headquarters	24. headquarters
25. delayed	25. delayed

LIST 4

1. crowned	1. crowned
2. ache	2. ache
3. practice	3. practice
4. argue	4. argue
5. delighted	5. delighted
6. thoughtfulness	6. thoughtfulness
7. championship	7. championship
8. nephew	8. nephew
9. advertisement	9. advertisement
10. shingle	10. shingle
11. freight	11. freight
12. blundering	12. blundering
13. wrenches	13. wrenches
14. postpone	14. postpone
15. windshield	15. windshield
16. strengthen	16. strengthen
17. prairie	17. prairie
18. powerfully	18. powerfully
19. smolder	19. smolder
20. occasionally	20. occasionally
21. standardize	21. standardize
22. obstinate	22. obstinate
23. circumstances	23. circumstances
24. triumphant	24. triumphant
25. thorough	25. thorough

Word Analysis

Total Correct..... *Grade*.....

PHONETIC INVENTORY

What are the names of these letters?

s	t	c	p	e	d	f	r	i	m	l	a	b
w	g	o	n	h	y	u	v	j	k	z	q	x
T	S	A	I	L	E	P	N	R	G	B	C	U
O	K	F	M	Q	D	H	W	Y	Z	V	X	J

What do these letters say?

c	l	a	s	i	b	r	t	j	u	m	h	p
e	f	o	g	x	n	v	q	d	w	y	k	z

What do these say?

th st wh sh br ch dr tr cl fr
gr pl sm tw fl sk sw

Phonetic inventory results:

Letter names missing.....
Letter sounds missing.....
Blends missing.....

DIFFICULTIES IN SPELLING

Check List of Difficulties	Norms	
____ Omits sounds or syllables	List 1	List 2
____ Adds sounds or syllables	Grade II — 8	Grade III — 6
____ Incorrect phonetic spelling	Grade III — 12	Grade IV — 9
____ Correct phonetic spelling but incorrect on non-phonetic word elements	Grade IV — 16	Grade V — 12
		Grade VI — 15
____ Slow handwriting		Grade VII — 18

DIFFICULTIES IN HANDWRITING

Check List of Difficulties	Norms
____ Speed too low	(Letters per minute)
____ Poor letter formation	Grade II — 35
____ Poor position of hand, pencil, paper, etc.	Grade III — 45
____ Irregular height	Grade IV — 55
____ Irregular spacing	Grade V — 65
____ Irregular slant	Grade VI — 75

Hand preference: Right..... Left.....

NORMS FOR WORD RECOGNITION AND ANALYSIS

List	Grade	Number of Correct Words[1]					
		Word Recognition			Word Analysis		
		L	M	H	L	M	H
A — B or C	1	10	23	38	14	34	58
1	2	6	11	20	10	22	35
1	3	29	38	46	48	62	70
2	4	54	62	65	79	88	90
2	5	68	72	76	92	94	95
3	6	80	85	88	97	98	100

[1] See Manual concerning credits for easier lists.

CHECK LIST OF DIFFICULTIES IN WRITTEN RECALL

____ Unaided recall scanty
____ Poorly organized recall
____ Inaccurate memories and guesses
____ Avoids use of new words in recall
____ Laborious writing
____ Spelling difficulty impedes recall

Ruled Lines for Writing or Spelling

MANWILLER WORD RECOGNITION TEST

By CHARLES E. MANWILLER
Assistant Director of Curriculum Study and Research
Pittsburgh Public Schools

Drawings by Elmer Stephan

B

TEST: FORM B

For Grades 1 and 2

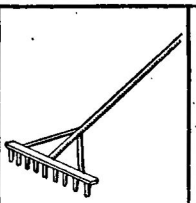
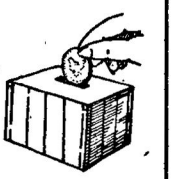
Name ..... Grade .....

Age .....years .....months. Teacher .....

Date ..... School .....

City and State .....

Score .....

a cake				
b bell				

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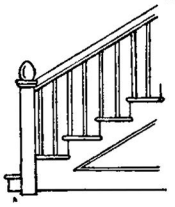
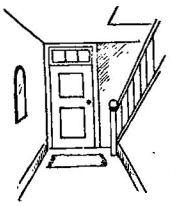
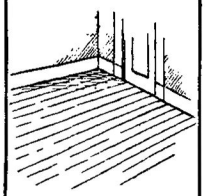
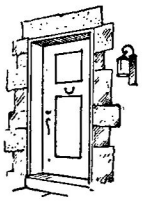
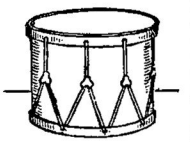
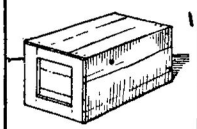
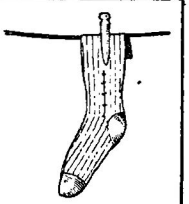
1 chair				
2 ball				
3 door				
4 box				
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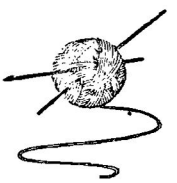
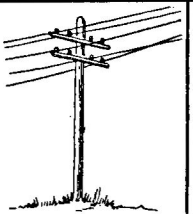
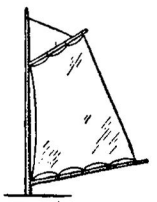
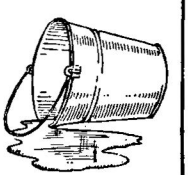
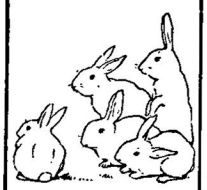
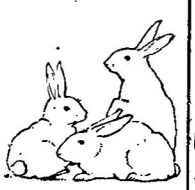
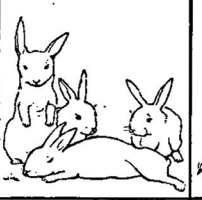
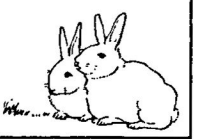
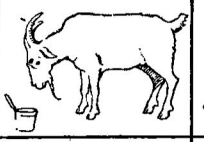
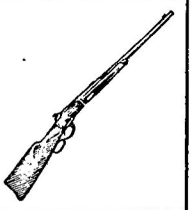
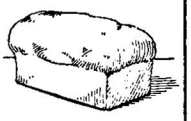
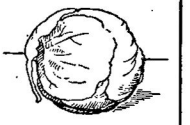
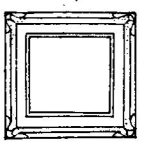
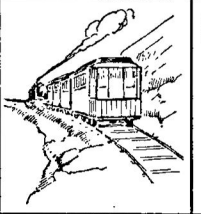
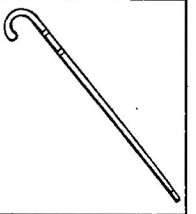
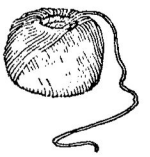
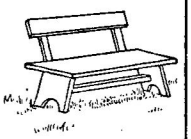
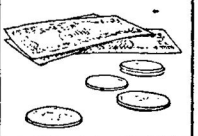
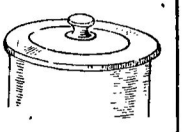
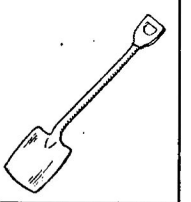
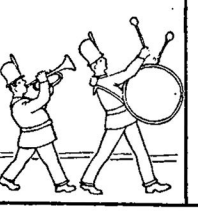
6 corn				
7 doll				
8 tail				

9 three				
10 girl				
11 milk				
12 train				
13 street				
14 monkey				
15 mother				
16 hand				

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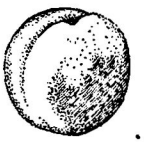
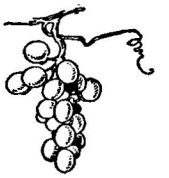
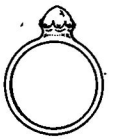
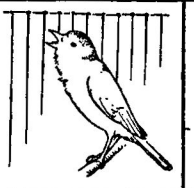
18 apple				
19 sing				
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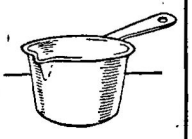
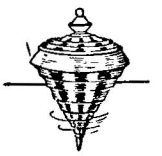
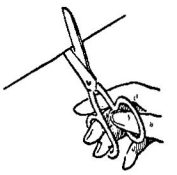
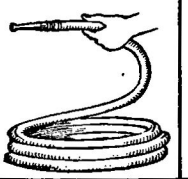
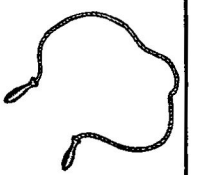
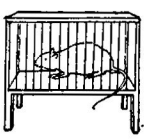
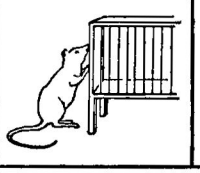
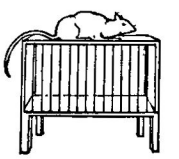
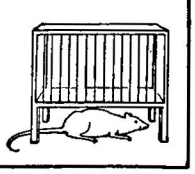
22 top				
23 cut				
24 nose				
25 on				

METROPOLITAN ACHIEVEMENT TESTS

PRIMARY I BATTERY: FORM R

Prim. I

R

BY GERTRUDE H. HILDRETH, PH.D.

Name ..... Boy ..... Girl .....

Teacher ..... Grade ..... School .....

City ..... County ..... State .....

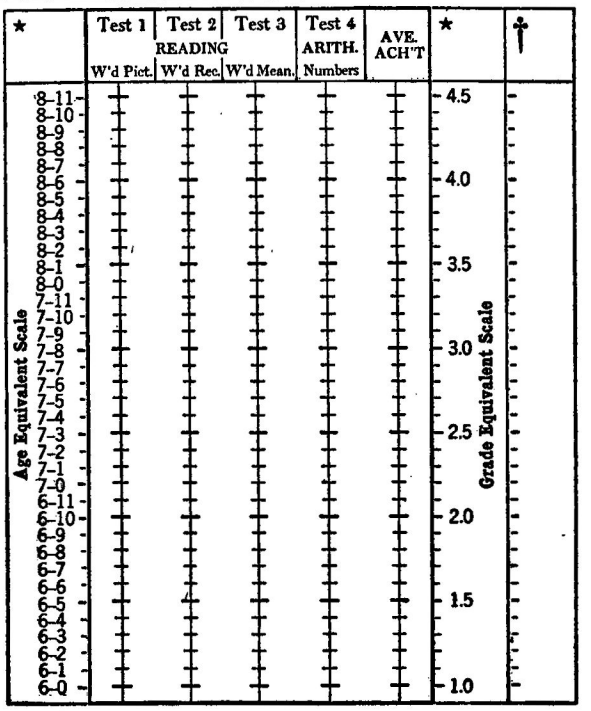
....
Year Month Day
Date of Testing

....
Year Month Day
Date of Birth

Age ..... yrs. ..... mos.

TEST	STAND-ARD SCORE	GRADE EQUIVA-LENT	
1. WORD PICT.			
2. WORD RECOG.			
3. WORD MEAN.			
AVER. READING		*	*
4. NUM-BERS			
AVERAGE ACH'T			

***Do not include when figuring average achievement.**



*** These two scales are independent. Only one should be used at one time. In plotting this chart, put an X in the box above the scale which is to be used.**

† An additional scale is provided here in order to make it possible to plot the chart in terms of norms other than those of age or grade.

The Profile Chart is designed to furnish a graphic picture of the achievement of an individual pupil as revealed by his test scores. The equivalent (grade, age, or other type) of each test score should be plotted on the proper stave and these points joined to make the profile.

Published by World Book Company, Yonkers-on-Hudson, New York, and Chicago, Illinois

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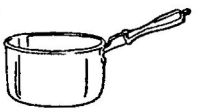
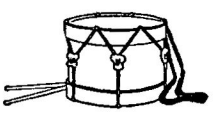
a

TEST I. READING — WORD PICTURE

a






cat
mouse
drum
pig




b

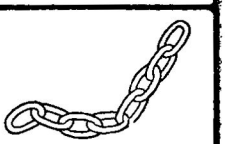



a little bear
a white rabbit
a pretty ring

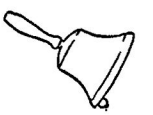



1-4



baby
cup
bell
chair

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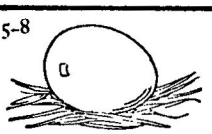
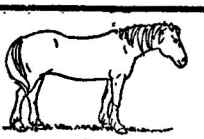
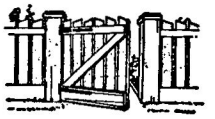



corn
hand
egg
apple

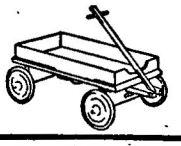
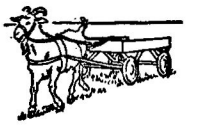



9–12

car
house
father
gate

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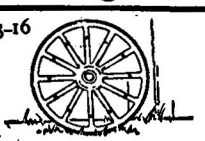
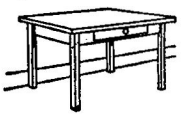
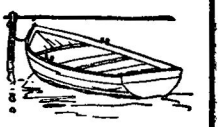




wheel
table
coat
money





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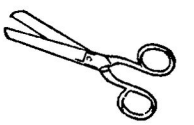
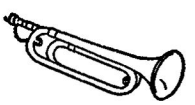



scissors
horn
flower
jump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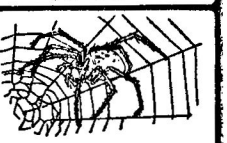
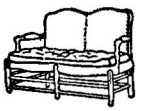
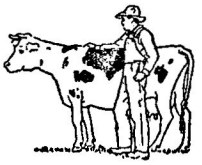
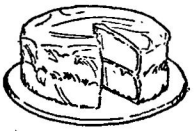



basket
seat
leaves
squirrel



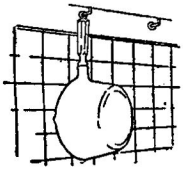
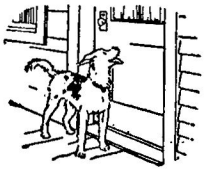
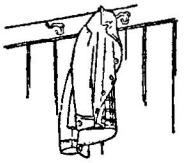
25-27

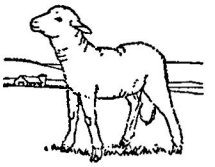


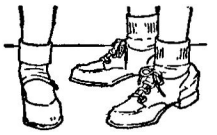

the farmer and his cow
a dog chasing a rat
a cake with candles


28-30

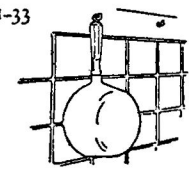
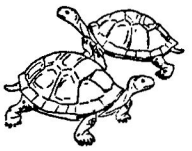





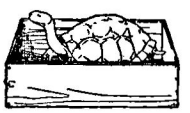


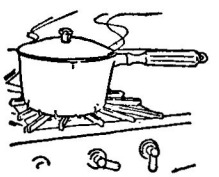
three sheep
a man is at the door
a coat on a hook

31-33

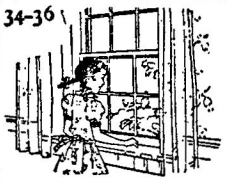
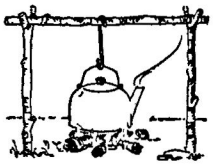



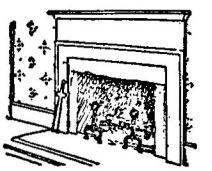
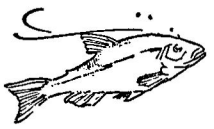




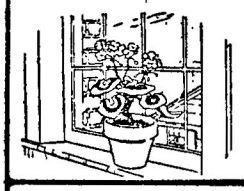
a pair of shoes
a turtle in a box
a pan on the stove


34-36


fish in a bowl
a girl at the window
a fire under a kettle

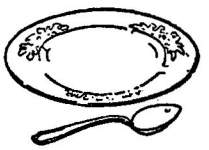



37-39





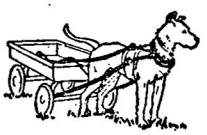

a smiling face
a horse takes a drink
a plate and a spoon




40-42







the doll is having a bath
the child cuts the bread
a goat pulling a wagon



No. right..... *Stans. score*..... *Gr. equiv*..... *Age equiv*.....

TEST 2. READING – WORD RECOGNITION

a.	my	be	we	me
b.	pig	big	bid	dig
c.	go on	in to	go in	go up
1.	ill	all	and	ball
2.	rough	round	crowd	sound
3.	may	step	tray	stop
4.	with	how	wish	both
5.	cabbages	carriages	vegetable	valley
6.	fished	fishing	wished	finding
7.	hid	ham	him	hit
8.	one	sly	own	only
9.	foot	find	food	good
10.	water	enter	waste	waiter
11.	far	jam	jar	job
12.	hair	hers	fair	war

13. willow winning wonder window

14. deer deep weed dip

15. talking looking walking taking

16. learn letter listen lesson

17. she can we can they can she was

18. give away come away come play gone today

19. little animals large animals large apples lovely apples

20. pretty dish pretty dress ugly dress party dress

21. before him before them before her below him

22. seven stones shining stars short sticks several stars

23. hungry pets happy party happy people heavy package

24. help them keep some look there keep them

25. small slices all pieces small pieces small peaches

26. he sighs she sings he sings the rings

No. right..... *Stand. score*..... *Gr. equiv*..... *Age equiv*.....

TEST 3. READING — WORD MEANING

a. house boy stone mouse man father

b. ball roll pin doll skates rose

1. black night orange wash purple oil

2. woman warm mother flower cane Jane

3. for two five soon seven high

4. plant fish bird boot bee airplane

5. bear ear moon goat wolf gate

6. bell soup nuts candy drum puppy

7. bowl cup bed spoon girl nose

8. this our what these where how

9. peas banks can wheel beets cabbage

10. map go gold walk window throw

11. key weed shoe child wall lily

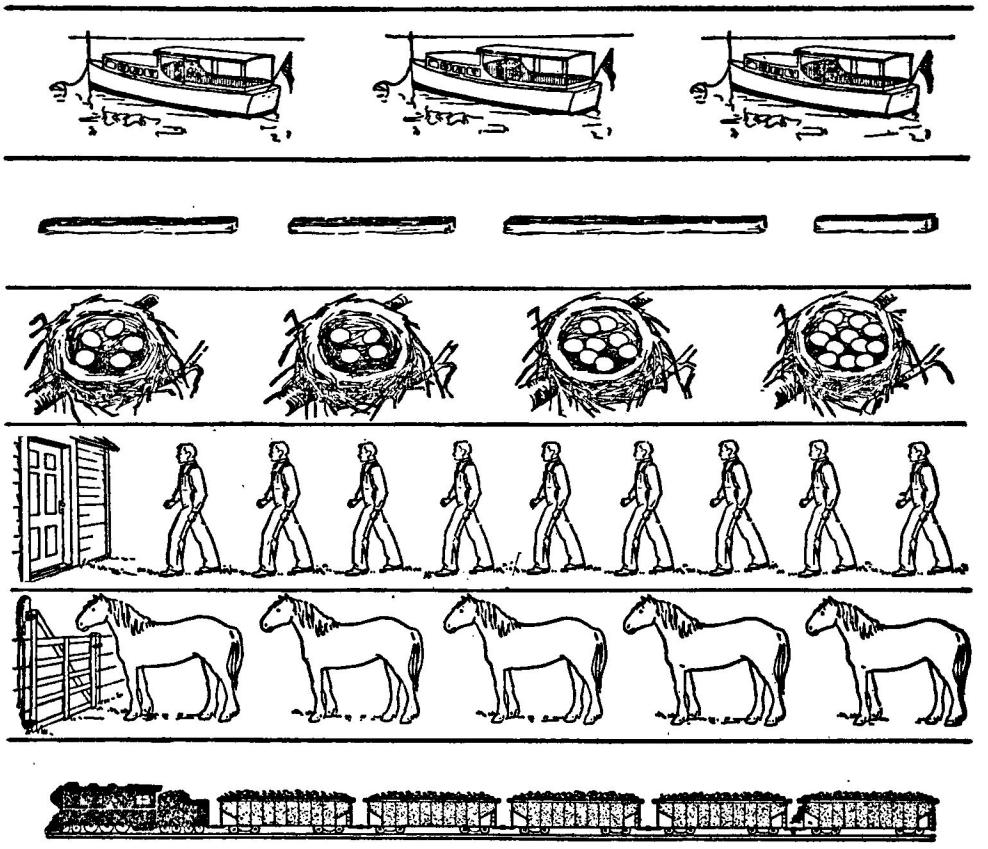
12. short loud wide tell cook tall

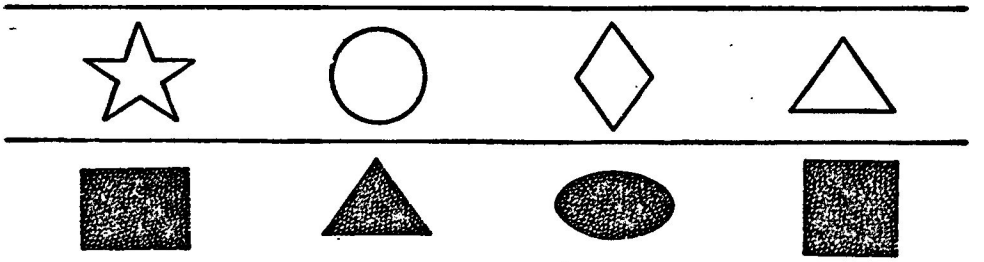
No. right .....

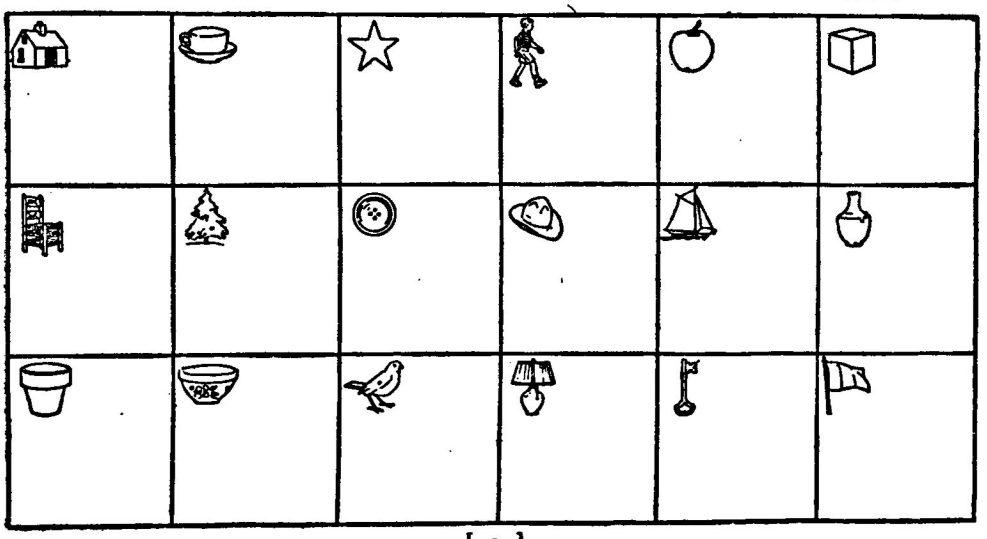
No. wrong .....

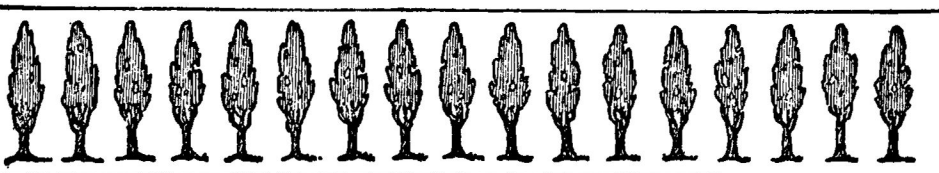
Difference..... *Stand. score*..... *Gr. equiv*..... *Age equiv*.....

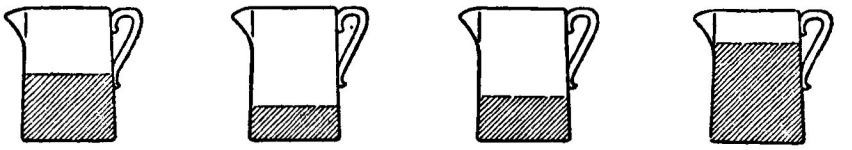
TEST 4. NUMBERS







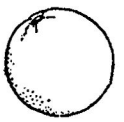


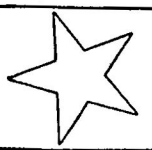


7 1 9 3 2 6

1 5 4 9 0 7

9 4 6 1 8 2

	2	5	4	6	3
	8	1	25	10	12
	5	6	4	1	3
	4	8	2	3	7
					
					
					
	4	6	7	1	8
	9	12	10	6	5
	10	12	8	9	6
	6	3	12	10	9

	2	9	7	19	17
	24	17	36	9	14
	3	12	20	6	10
	4	7	6	17	19

1 3	9 1	3 4	1 6	7 0
8 1	4 2	5 5	2 7	8 3
4 5	5 3	0 9	3 6	5 7

9 -1	3 -2	8 -5	6 -4	8 -7

No. right..... *Stand. score*..... *Gr. equiv*..... *Age equiv*.....

Primary • GRADES 1 - 2 - 3 • 1953 S-Form

California Short-Form Test of Mental Maturity

Devised by

ELIZABETH T. SULLIVAN, WILLIS W. CLARK, AND ERNEST W. TIEGS

TO BOYS AND GIRLS:

This test booklet has some games you will like. They will show how well you can think. Do as many of them as you can.

DO NOT TURN THIS PAGE UNTIL TOLD TO DO SO.

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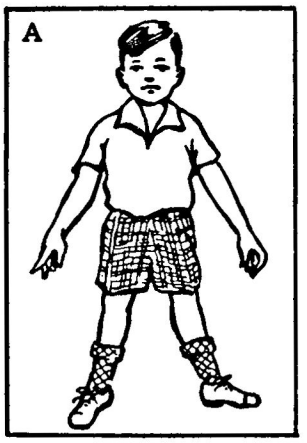
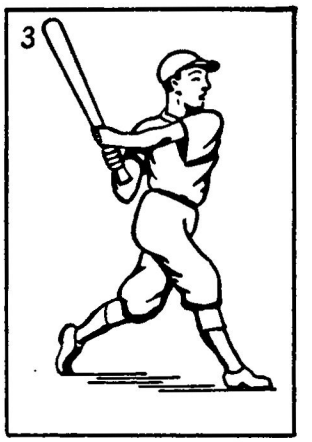
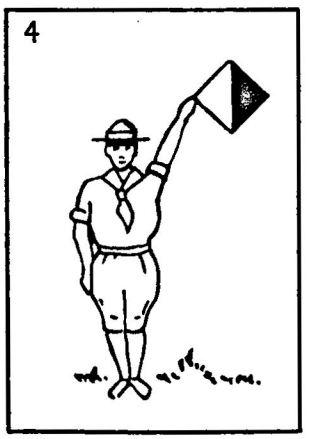
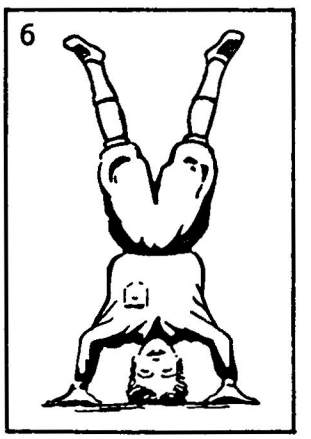
9 8 7 6 5 4 3 2 1

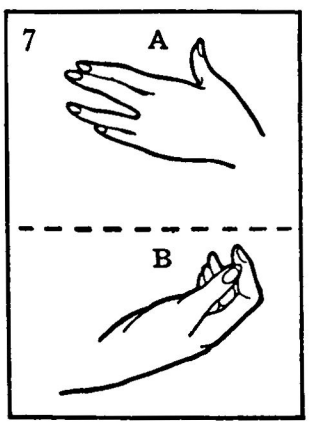
TEST 1.

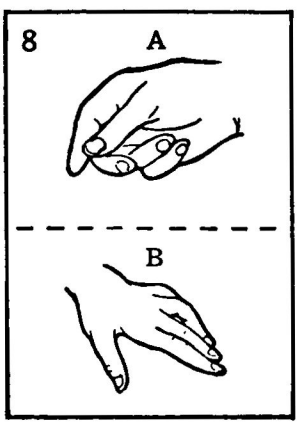


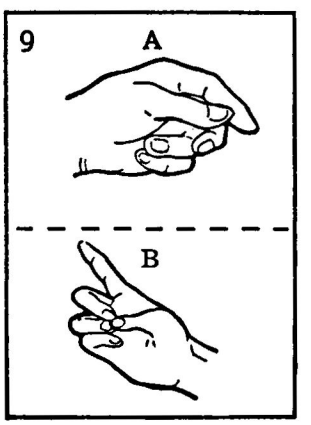


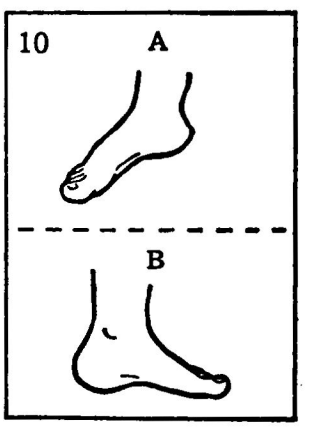








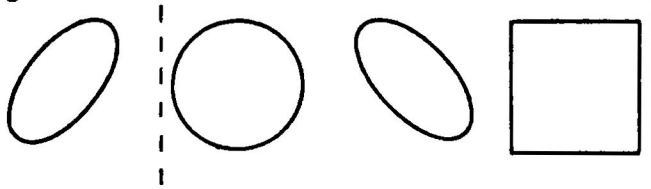




Test 1 Score
(number right).....

TEST 2.

C



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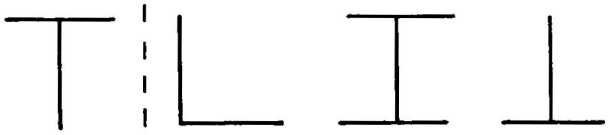

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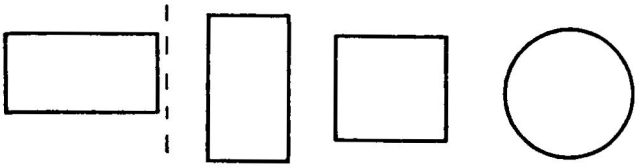

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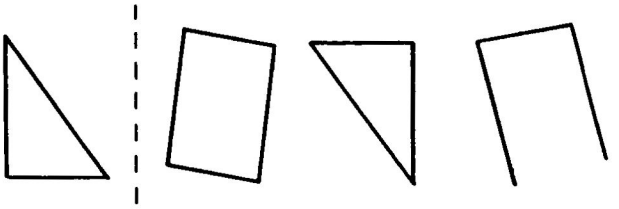

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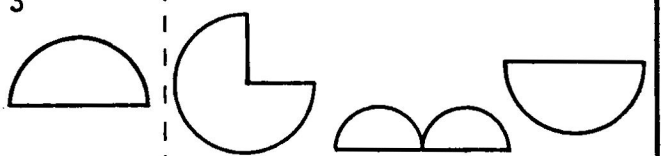

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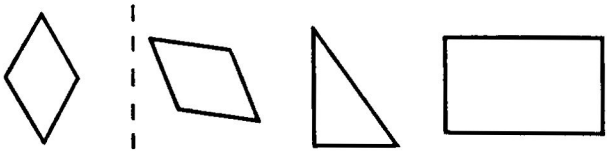

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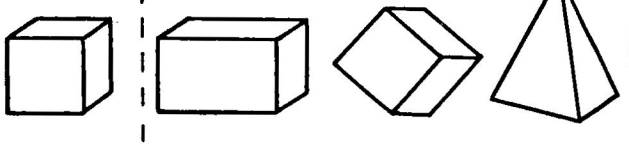

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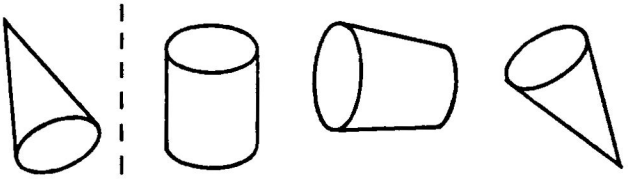

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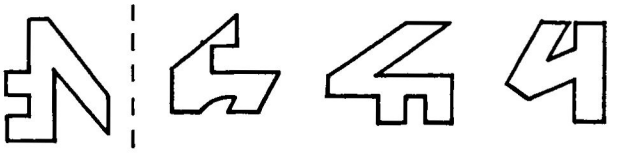

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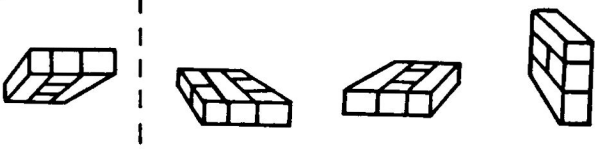

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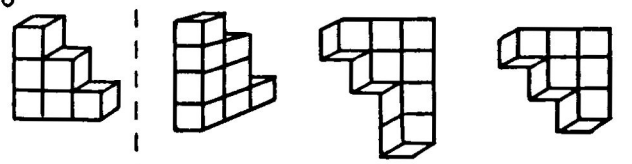

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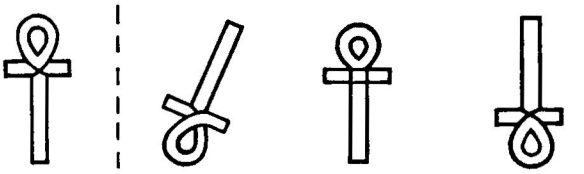

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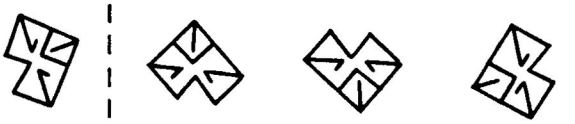

1 2 3 1 2 3

Test 2 Score
(number right).....

TEST 3.

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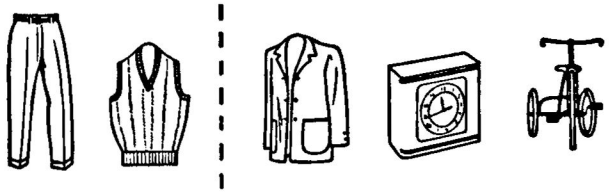

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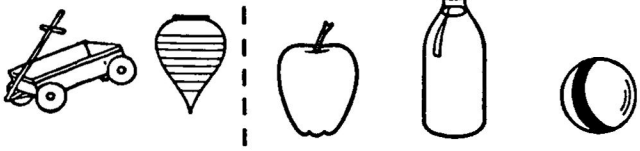

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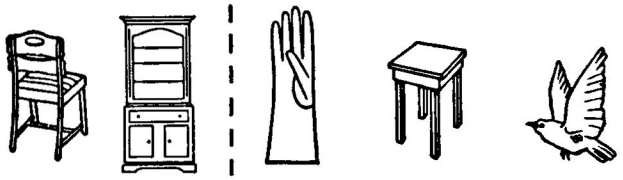

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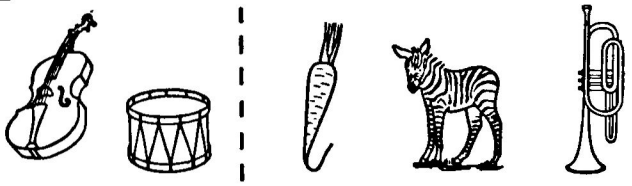

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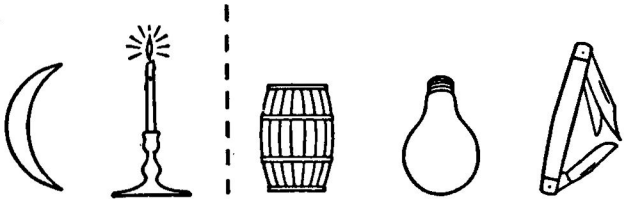

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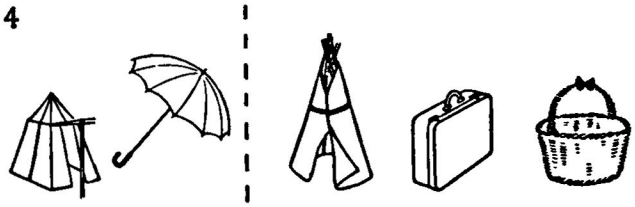

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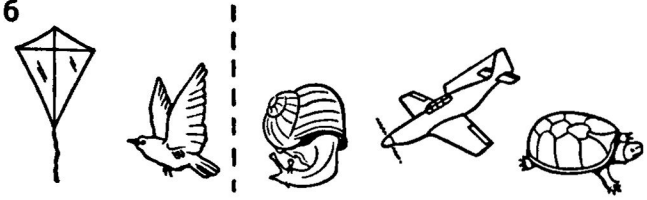

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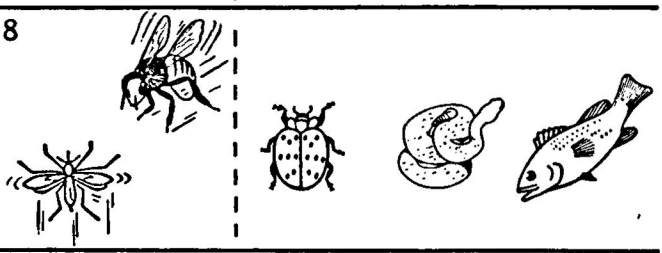

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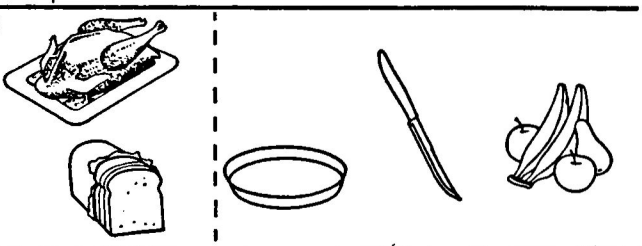

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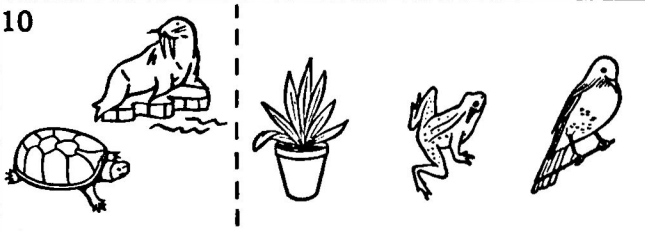

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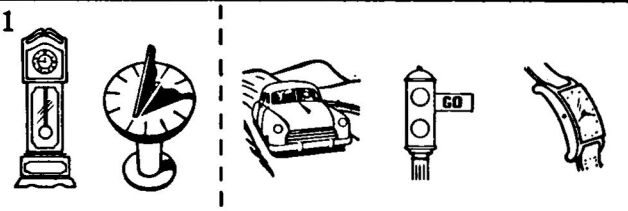

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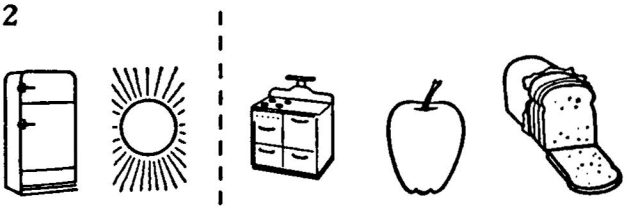

1 2 3

1 2 3

Test 3 Score
(number right) .....

TEST 4.

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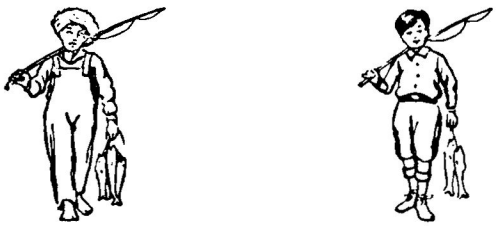

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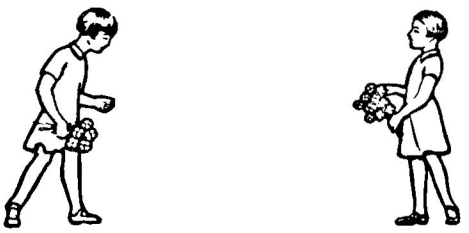

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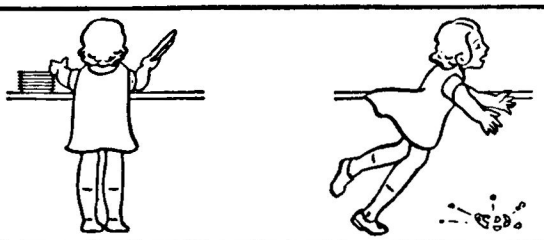

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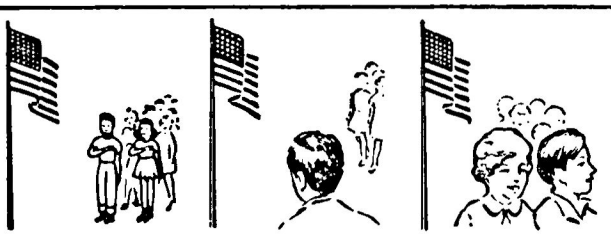

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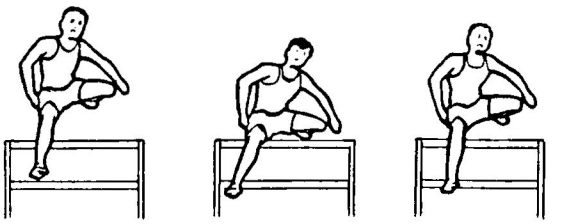

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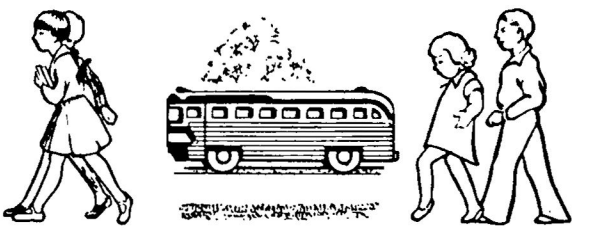

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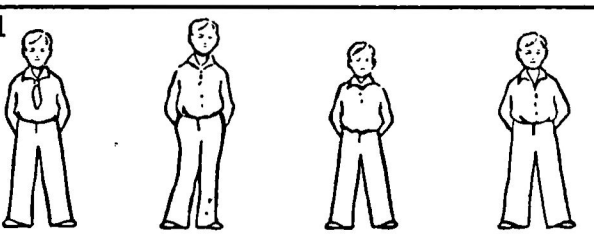


12

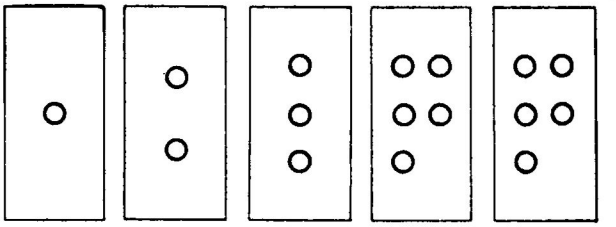
1 2 3 1 2 3

Test 4 Score
(number right).....

TEST 5.

I

J



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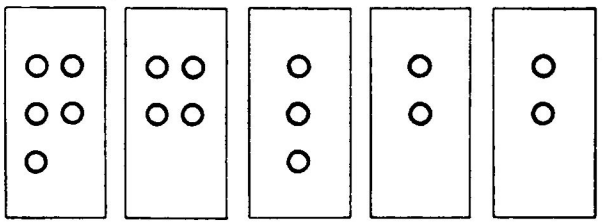

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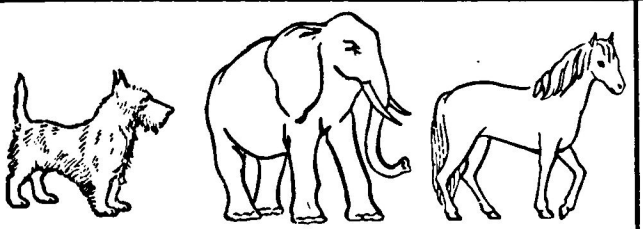

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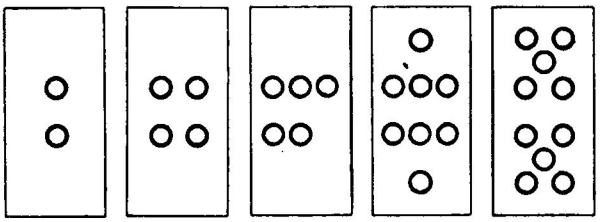

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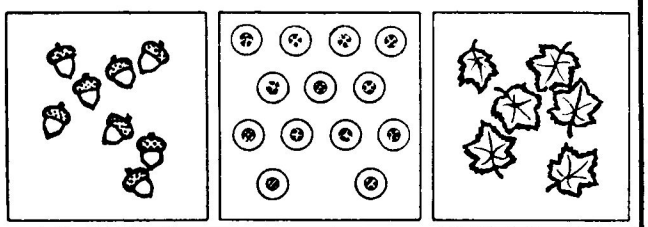

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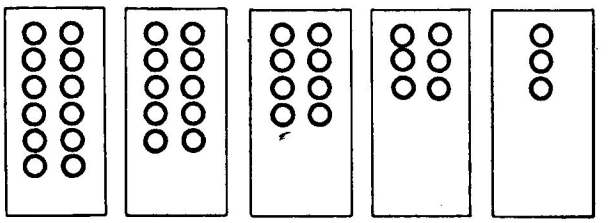

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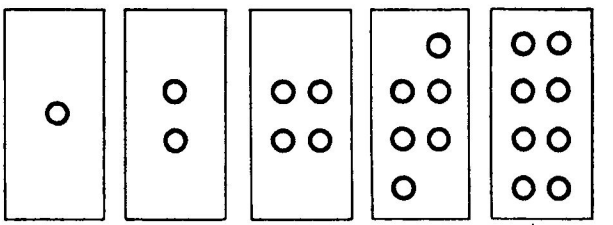

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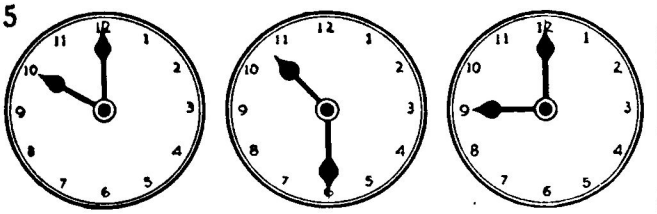

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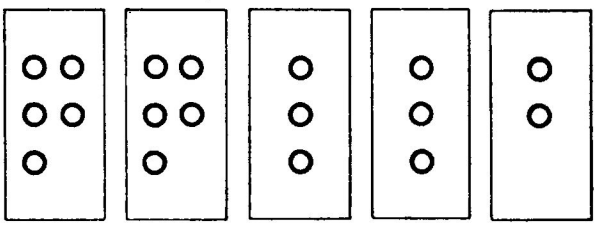

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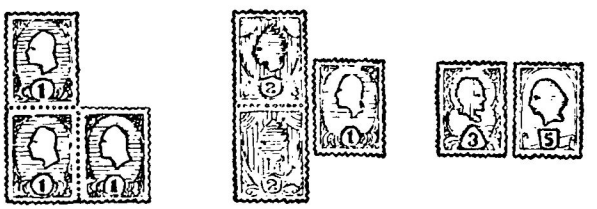

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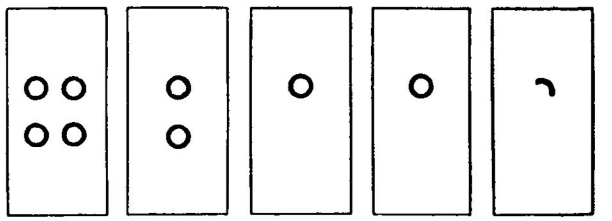
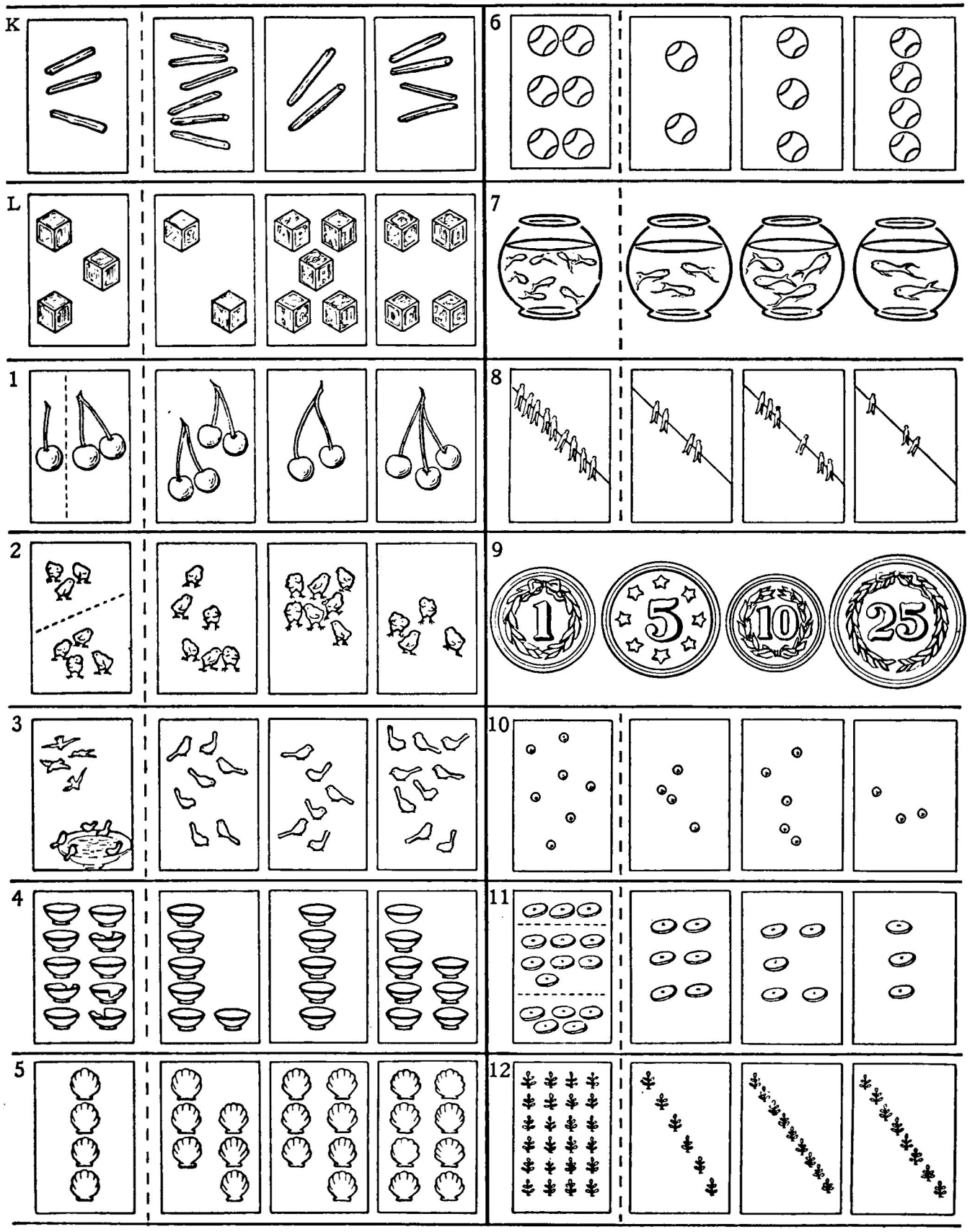


1 2 3 1 2 3 4 5

Test 5 Score
(number right) .....

TEST 6



Test 6 Score
(number right).....

TEST 7

Test 7 Score
(number right).....

California Short-Form Test of Mental Maturity

primary GRADES 1-2-3 '53 S-form

DEVISED BY E. T. SULLIVAN, W. W. CLARK, AND E. W. TIEGS

Name ..... Grade ..... (CIRCLE ONE) Boy Girl
Last First Middle

School ..... City ..... Date of Test .....
Month Day Year

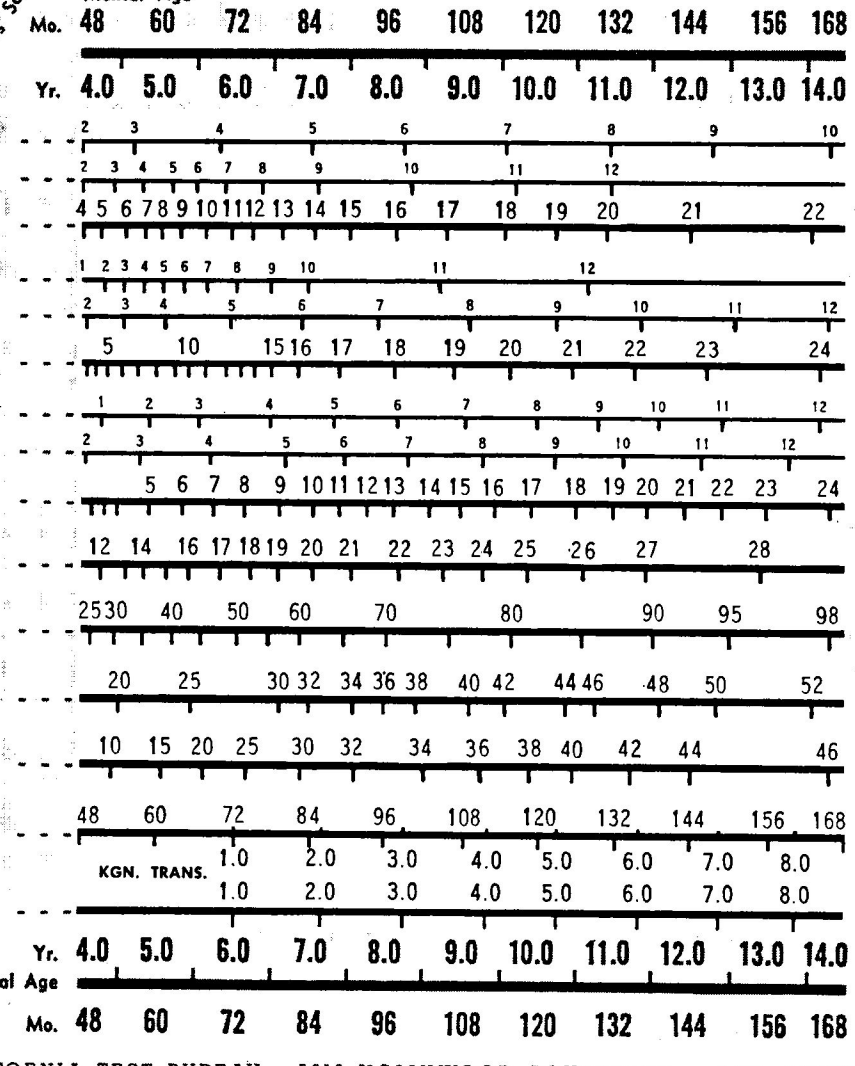
Examiner ..... (.....) Pupil's Age ..... Date of Birth .....
Month Day Year

See MANUAL for instructions.

Factor	Test	Possible Score	Pupil's Score
SPATIAL RELATIONSHIPS	1. Sensing Right and Left	10*	
	2. Manipulation of Areas	12*	
	TOTAL (1+2)	22	
LOGICAL REASONING	3. Similarities	12*	
	4. Inference	12	
	TOTAL (3+4)	24	
NUMERICAL REASONING	5. Number Series	12*	
	6. Numerical Quantity	12	
	TOTAL (5+6)	24	
VERBAL CONCEPTS	7. TOTAL VERBAL CONCEPTS	28	
	TOTAL MENTAL FACTORS	98	
	LANGUAGE FACTORS (4+6+7)	52	
	NON-LANGUAGE FACTORS (1+2+3+5)	46	
	CHRONOLOGICAL AGE		
	Average Grade Placement Equivalent		
	INTELL. GRADE PLACEMENT		

* Non-language Tests

DIAGNOSTIC PROFILE (Chart Pupil's Scores Here)



SUMMARY OF DATA

	TOTAL MENTAL FACTORS	LANGUAGE FACTORS	NON-LANG. FACTORS
SCORES			

MA

divided by

CA

equals

I.Q.

INTELLIGENCE GRADE PLACEMENTS

PUBLISHED BY CALIFORNIA TEST BUREAU — 5916 HOLLYWOOD BOULEVARD — LOS ANGELES 28, CALIFORNIA
BRANCH OFFICES: MADISON, WISC.; NEW CUMBERLAND, PA.